ACQUISITION RESEARCH SPONSORED REPORT SERIES

Defining and Measuring the Success of Services Contracts in the United States Navy

6 December 2012

by

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Prepared for: Naval Postgraduate School, Monterey, California 93943

	Form Approved OMB No. 0704-0188
Report Documentation Page	*Form Approved* *OMB No. 0704-0188*

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1. REPORT DATE **06 DEC 2012**	2. REPORT TYPE	3. DATES COVERED **00-00-2012 to 00-00-2012**
4. TITLE AND SUBTITLE **Defining and Measuring the Success of Services Contracts in the United States Navy**		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)		5d. PROJECT NUMBER
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Naval Postgraduate School,Graduate School of Business & Public Policy,555 Dyer Road, Ingersoll Hall,Monterey,CA,93943**		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
Department of Defense (DoD) spending on services has been trending upwards for over a decade and, as of 2011, accounts for 56% of total contract spending. The increased reliance on services contractors has prompted the Government Accountability Office (GAO) to look more closely at the acquisition and contract management process. The term program management describes the approach and methodology needed for the management of complicated projects. We used the program management approach to address the following questions (1) How do different stakeholders define successful services contracts within the Navy? (2) How do different stakeholders measure services contracts within the Navy? and (3) How should Navy services contracts be defined and measured? We conducted a survey of 168 key stakeholders. We discovered that when defining and measuring the success of a service contract all stakeholders tend to utilize outcomerelated factors over process-oriented factors. We believe this is because outcomes tend to drive perceptions of success more than processes and are more easily quantifiable. Metrics used to measure success are typically related to cost schedule, and performance. Based on these findings, we provide recommendations on establishing better internal control measures, putting in place an operational audit process, and creating a standardized reporting process.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**123**	

ACQUISITION RESEARCH PROGRAM
GRADUATE SCHOOL OF BUSINESS & PUBLIC POLICY
NAVAL POSTGRADUATE SCHOOL

Abstract

Department of Defense (DoD) spending on services has been trending upwards for over a decade and, as of 2011, accounts for 56% of total contract spending. The increased reliance on services contractors has prompted the Government Accountability Office (GAO) to look more closely at the acquisition and contract management process. The term *program management* describes the approach and methodology needed for the management of complicated projects. We used the program management approach to address the following questions: (1) How do different stakeholders define successful services contracts within the Navy? (2) How do different stakeholders measure services contracts within the Navy? and (3) How should Navy services contracts be defined and measured? We conducted a survey of 168 key stakeholders. We discovered that when defining and measuring the success of a service contract all stakeholders tend to utilize outcome-related factors over process-oriented factors. We believe this is because outcomes tend to drive perceptions of success more than processes and are more easily quantifiable. Metrics used to measure success are typically related to cost, schedule, and performance. Based on these findings, we provide recommendations on establishing better internal control measures, putting in place an operational audit process, and creating a standardized reporting process.

Keywords: Services Contracts, Services Acquisition, Stakeholder Theory, Agency Theory, Program Management, Critical Success Factors (CSFs)

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Acknowledgments

We would like to thank our spouses, Leah Spede and Katherine Hagan, and fiancé, Noel Estrada, for their tremendous love, support, and encouragement in our writing of this MBA project. We cannot express enough appreciation and thanks for their understanding and sacrifice as we dedicated ourselves to this research.

We would also like to thank the major contributors from the contracting commands at the Fleet Logistics Center (FLC) Philadelphia, FLC Jacksonville, FLC Norfolk, FLC Puget Sound, FLC San Diego, Naval Sea Systems Command (NAVSEA), Military Sealift Command (MSC), and Space and Naval Warfare Systems Command (SPAWAR), who generously supported and assisted us in the deployment of our survey.

Additionally, we would like to thank the Acquisition Research Program, especially RADM James Greene, USN (Ret), Ms. Karey Shaffer, and Ms. Tera Yoder, for providing funding and resources to ensure the success of this research project.

Finally, we would like to thank our advisors, Professors Rene G. Rendon and Uday M. Apte, for their support, guidance, and encouragement throughout the duration of this project.

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NPS-CM-12-201

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LIST OF ACRONYMS AND ABBREVIATIONS

ACC	Air Combat Command
AETC	Air Education and Training Command
AMIC	Acquisition Management and Integration Center
AT&L	Acquisition, Technology, and Logistics
CAGR	Compound Annual Growth Rate
CO	Contracting Officer
COR	Contractor Officer Representative
COTR	Contracting Officer's Technical Representative
CSF	Critical Success Factors
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act
DoD	Department of Defense
ERS	Equipment-Related Services
FAR	Federal Acquisition Regulation
FLC	Fleet Logistics Center
FMR	Financial Management Regulation
FRS&C	Facility-Related Services and Construction Services
FY	Fiscal Year
GAO	Government Accountability Office
ICT	Information and Communications Technology
IG	Inspector General
IPT	Integrated Product Team

MDA	Milestone Decision Authority
MSC	Military Sealift Command
NATO	North Atlantic Treaty Organization
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NPS	Naval Postgraduate School
PAMS	Professional, Administrative, and Management Services
PM	Program Manager
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
R&D	Research and Development
SPAWAR	Space and Naval Warfare Systems Command
SOW	Statement of Work
SRI	Stanford Research Institute
USD	Under Secretary of Defense

I.   Introduction

A.   Background

Department of Defense (DoD) spending on services has been trending upwards for over a decade and, as of 2011, accounted for 56% of total contract spending, compared to 48% in 2000 (Berteau, Ben-Ari, Sanders, Morrow, & Ellman, 2012). Figure 1 shows DoD spending trends across six broad services categories by compounded annual growth rate (CAGR). The categories used are information and communications technology (ICT); professional, administrative, and management services (PAMS); research and development (R&D); equipment-related services (ERS); facility-related services and construction services (FRS&C); and medical services (Berteau et al., 2012). The Center for Strategic and International Studies modified the standard DoD portfolio grouping by adjusting services codes to more appropriately align with their respective categories (Berteau et al., 2012). In fiscal year (FY) 2011, more than half of the DoD's $375 billion in contract obligations was for services (Government Accountability Office [GAO], 2012a). The DoD has steadily increased its reliance on services contractors to augment its critical capability shortfalls across the six services categories shown in Figure 1 (GAO, 2011b).
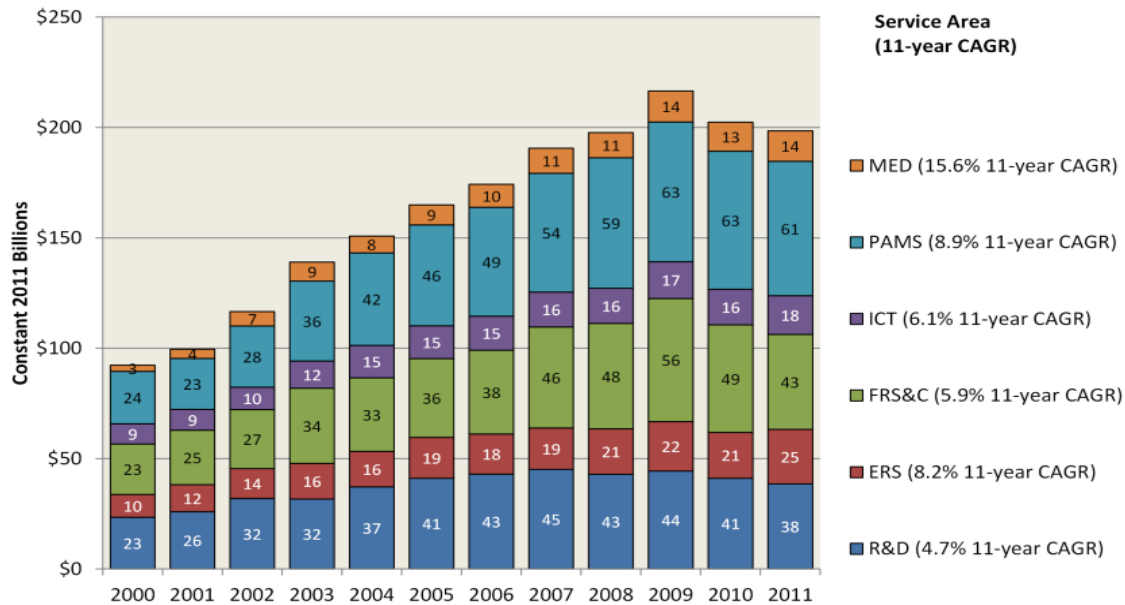
Figure 1.   Defense Contract Spending by Services Area 2000–2011
(Berteau et al., 2012)

As DoD spending on services has increased over the last 10 years, numerous published Government Accountability Office (GAO) and Department of Defense Inspector General (DoDIG) reports have cited deficiencies in multiple areas of the contracting process. Between 2001 and 2009, the GAO issued 16 reports citing deficiencies in the acquisition of services. Between FY2003 and FY2008, the DoDIG issued 142 reports citing weaknesses in the acquisition and contract administration process (DoDIG, 2009). Contract management has been on the GAO high-risk list since 1992, revealing the difficulties in meeting services procurement, cost, schedule, and performance objectives (Apte, Apte, & Rendon, 2010). Deficient process areas found by both the GAO and DoDIG included market reasearch, contract type, requirements management, project management, contractor oversight, and personnel training (Apte et al., 2010). These cited problems are compounded by an acquisition workforce that has remained the same size since 2001, while spending services have doubled over the same period (GAO, 2009b). The DoD's contract management process capabilities have also been found to be lacking in all phases of the contracting process. The contract administation and the

contract closeout phases, specifically, have even lower process capability than the other phases.

The DoD needs to focus on improving services contract mangement by first identifying how disparate stakeholders define and measure the success of services acquisitions. Research is necessary to gain an increased understanding of differing stakeholders' goals and objectives, which could be used to develop a standardized definition of services acquisition success and to align stakeholders towards a common goal. In order to maximize the use of scarce acquisition resources and improve outcomes, research is necessary to identify and provide recommendations on the factors of successful services contracts.

B.   Purpose

The primary purpose of this study was to conduct further analysis of services contracting management practices within the Navy. The objective of this research was to build upon the understanding developed in prior research projects to generate metrics for defining and measuring successful services contracts. These developed metrics will later help identify factors that influence successful services contract outcomes. We designed a survey based on the exploratory findings of Frank Miller, James Newton, and Salvatore D'Amato (2012) in *Defining and Measuring Success of Service Contracts*. We distributed our survey to the primary stakeholders for services acquisitions to determine how different stakeholders define and measure success. The findings of this project will support the continued research of Dr. Rene G. Rendon, PhD, and Dr. Uday M. Apte, PhD, on the DoD's management of services contracts.

C.   Research Questions

In our efforts to build upon prior research, we attempted to answer the same questions that Miller, Newton, and D'Amato presented in their 2012 project. The three research questions that relate to services acquisitions are as follows:

- How do different stakeholders define successful services contracts within the Navy?

- How do different stakeholders measure services contracts within the Navy?

- How should Navy services contracts be defined and measured?

D. Benefits and Limitations of This Project

This research builds on the exploratory findings from the 2012 Miller, Newton, and D'Amato project. The results of this project can be used to strengthen contracting professionals' understanding of successful services acquisitions from disparate stakeholder perspectives. Improved understanding of this subject will enable the development of metrics to measure the success of services contracts. In this study, we attempt to identify the cogent elements that drive increased performance and decreased cost for taxpayers.

This research was limited by the sample size of stakeholders surveyed relative to the population of stakeholders involved in services acquisitions. Due to limited availability of stakeholder subjects, obtaining a larger sample size was not feasible for this project.

E. Research Methodology

We addressed the research questions with an anonymous online survey sent to stakeholders employed by the Department of the Navy. The survey contained seven demographic questions, three open-ended questions, seven multiple-choice questions, and four ranking questions. This survey was adapted from the original survey developed by Miller, Newton, and D'Amato (2012). We used the findings from their research to refine questions and limit potential ambiguity in data collection.

F. Organization of Report

This report is organized into five chapters. Chapter I includes background information, the purpose of the report, research questions, benefits and limitations of

the project, and the research methodology. In Chapter II, we review literature on the services contracting process, Agency and Stakeholder Theories, the various stakeholders involved, and critical success factors. We examine various GAO and DoDIG reports and Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L]) guidance concerning current weaknesses in the services contracting process. In Chapter III, we explain how we collected and analyzed our data and, specifically, how we created our survey instrument and our analytical process. We also provide a brief description of the commands that participated in the survey. In Chapter IV, we provide our survey findings and discuss our research results. In Chapter V, we provide a summary of and conclusions related to our research, and we also offer recommendations for improving services acquisitions in the Navy. We also provide areas for further study in DoD services acquisitions.

G.   Summary

In Chapter I, we provided background information on services acquisitions, the purpose of the research, research questions, benefits and limitations of the research, and the methodology and organization of the report. Spending on services contracts has doubled over the last 10 years, despite an acquisition workforce that has not expanded to meet this increased workload. Indeed, the DoD has significant challenges to address in contract management to remove the GAO's high-risk billing. The primary focus of this report is the research questions presented. In Chapter II, we review literature on deficiencies in services contracting, a program management approach to services acquisitions, the services contracting process, Agency and Stakeholder Theories, stakeholders involved in the process, and critical success factors.

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II. Literature Review

A. Introduction

In Chapter I, we established the foundation of this research. In this chapter, we provide a literature review of services contracting. This review covers the following topics: deficiencies in services contracting, the need for a program management approach to the services contracting process, the current services contracting process, Stakeholder Theory and the various stakeholders on the acquisition team, critical success factors, and the application of Agency Theory to the services contracting process. We also show how both Agency Theory and Stakeholder Theory can be tied to contracting for services and describe why there is a need for a program management approach to the process. In the next section, we examine specific discrepancies that are noted in GAO, USD(AT&L), and DoDIG reports.

B. Deficiencies in Services Contracts

DoD services contract obligations have risen from $92 billion in 2001 to over $200 billion in 2008 (GAO, 2009a). In FY2006, more funds were obligated for services contracts than for supplies and equipment combined (GAO, 2007a). This massive spending growth in services is not attributable solely to the sizable logistical support efforts required in Iraq and Afghanistan. In 2008, these operations accounted for $25 billion of the $200 billion spent on services, but the remaining growth is due to other factors (GAO, 2009a). These factors include contractors filling roles previously held by government employees through outsourcing and the DoD using services contracts for historically non-services acquisitions (GAO, 2007a). It is important to note that during the recent years of defense spending drawdown (2008–2011), spending on services has decreased at a lower percentage rate than spending on products (Berteau et al., 2012).

The significant growth in services spending discussed previously is accompanied by a contracting workforce that has remained relatively the same size since 2001 (GAO, 2009b). Prior to 2001, the acquisition workforce was slashed by nearly 50% from 1989 to 1999 (GAO, 2012c). A sufficiently trained and competent acquisition workforce is necessary for effective contract management and is needed to achieve successful defense acquisition outcomes (Apte et al., 2010). The GAO (2009b) reports that acquisition workforce capability shortfalls make it difficult to ensure that value is achieved and expose the Department of Defense to unnecessary risk. Figure 2 shows the shrinking acquisition workforce as procurement appropriations soared since 1998.
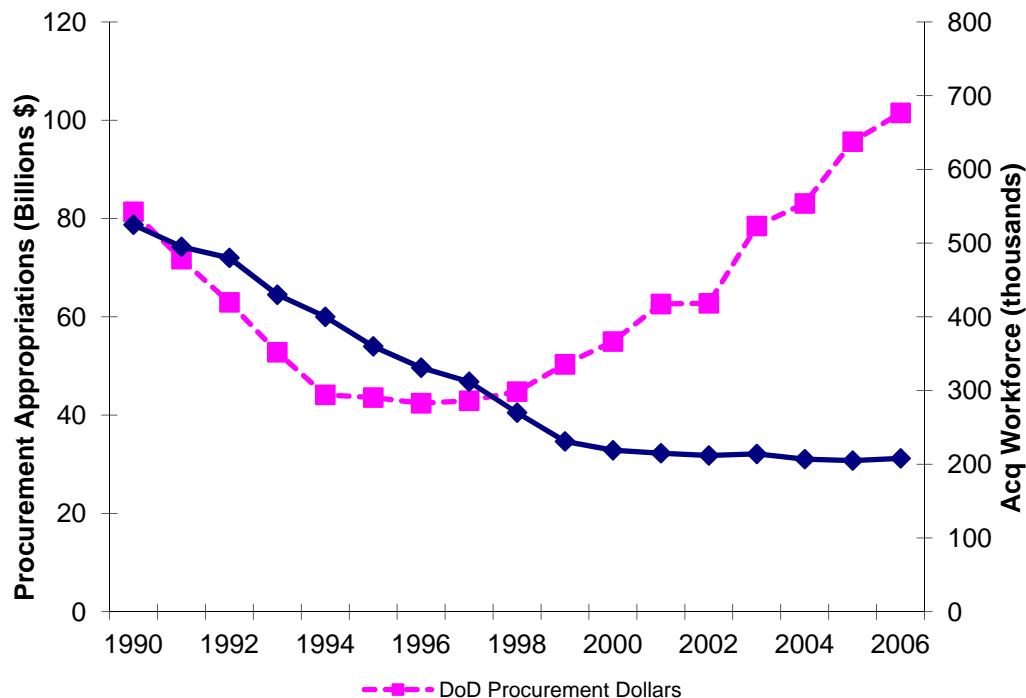
Figure 2.   DoD Procurement Appropriations and Acquisition Workforce
(Gansler, 2011)

In this section, we look further into the deficient contracting areas noted by the DoDIG and GAO. Government reports indicate insufficient or undocumented market research during the acquisition planning process for services (DoDIG, 2009; GAO, 2012b). Market research is required by the Federal Acquisition Regulation

(FAR, 2012), and its purpose is to reveal the market's capability of meeting the government's specific acquisition requirement and to assist in determining the appropriate acquisition strategy to fulfill it (FAR, 2012). Market research is also necessary to enhance competition and to ensure government socioeconomic objectives are achieved. A primary government socioeconomic objective is to promote opportunities for small business concerns to compete for government acquisitions. The government uses small business set-asides to award certain acquisitions exclusively to small business concerns and more specific categories such as services-disabled veteran-owned small businesses (FAR, 2012). Market research will determine if an acquisition is suitable for set-aside by determining if responsible small business concerns can satisfy the government's requirement.

The GAO and DoDIG have found inappropriate contract types used on services contracts, which leads the government to shoulder increased cost risk (DoDIG, 2009; GAO, 2009a). Specifically, the GAO found the overuse of high-risk time-and-materials contracts due to their ease of use, speed, and flexibility (GAO, 2009a). The use of time-and-materials contracts should be limited because they provide no incentive to the contractor for cost control and efficiency (GAO, 2009a). There is not a blanket good or bad type of contract, only the inappropriate use of a specific contract type in a procurement. The appropriate contract type is necessary to properly distribute contract risk between the government and contractor, and to provide the contractor with the most incentive for efficient performance.

The use of a proven program management approach is considered a best practice for managing services contracts (Apte et al., 2010). A program management approach utilizes methods such as formal project managers, project teams, integrated processes, and a project life cycle to manage contracts. Despite these proven best practices, government reports have shown that the DoD does not have an adequate management structure to oversee services acquisitions at both the strategic and transactional levels (DoDIG, 2009; GAO, 2009a).

Government reports have repeatedly identified contractor oversight and contract administration as serious problems in services contract management (DoDIG, 2009; GAO, 2007b, 2007c, 2009a). Proper oversight and administration ensure that contractors are providing timely and quality services in accordance with the terms of the contract and mitigate contractor performance risk throughout the period of performance.

Both the GAO and DoDIG have identified poorly defined services requirements as a deficient area of services contracts (DoDIG, 2009; GAO, 2009a). A clearly defined description of what the contractor is required to provide the government is necessary to effectively hold contractors accountable, meet customer needs, and ensure that the best value is achieved.

The noted deficiencies discussed in this section provide insight into why contract management has been on the GAO high-risk list for 20 years. Improvements in multiple contract management areas are required to effectively reduce the government's exposure to the risk of overpaying for services.

With DoD financial resources declining since 2009, the DoD must achieve optimal value for defense acquisitions. In his 2010 *Better Buying Power Guidance Memorandum* (OUSD[AT&L]), the Under Secretary of Defense (Acquisition, Technology, and Logistics; USD[AT&L]) acknowledged that DoD practices for services procurement are far less mature than for weapons systems, and he provided guidance to improve services acquisition efficiency. The USD(AT&L) directed each branch to appoint a flag-level senior manager for services, adopt a standard taxonomy for types of services, and address the root causes of poor tradecraft in services (OUSD[AT&L], 2010). The component senior manager for services will be responsible for governing the planning, execution, strategic sourcing, and management of services contracts (OUSD[AT&L], 2010). This USD(AT&L) initiative takes steps to address weaknesses cited by the GAO in strategic management of services acquisitions. A standard taxonomy of reporting categories will ensure consistency across and within the departments and improve visibility and

the ability to measure productivity and success across the DoD. The USD(AT&L) cited the following examples of poor tradecraft that must be improved: mission creep, one-bid competitive procurements, misuse of time-and-materials and award fee contracts, and the need to incentivize productivity for large services contracts (OUSD[AT&L], 2010). The Secretary's strategic guidance is an important step in addressing the problems found by the GAO and DoDIG, and it provides a path for delivering better value to the taxpayers.

The deficiencies described previously are significant and by no means comprehensive. There are numerous other examples of insufficient oversight, lack of knowledge by acquisition personnel, and improper contract administration. Some of the deficiencies listed could be corrected if a program management approach was widely implemented by the DoD into the services contracting process. In the next section, we give a brief overview of program management concepts and how they could be applied to services acquisitions.

C.   Program Management Approach to Services Acquisitions

The lack of a mature program management infrastructure and a life-cycle approach to services acquisition project management exposes the DoD to the risk of not meeting cost, schedule, and performance objectives (Apte & Rendon, 2007). The DoDIG and GAO identified critical deficiencies when examining the DoD's existing management structure for acquiring services. In this section, we review basic program management concepts and the implications of research conducted by Apte and Rendon (2007), which examined the application of a program management approach and project management concepts to services acquisition.

1.   Overview of the Program Management Approach and Project Management Concepts

Apte and Rendon (2007) use the term *program management* to describe the approach and methodology needed for the management of complicated projects. A program management approach includes the foundation that enables the attainment

of cost, schedule, and performance objectives, and represents the coordinated centralized management of multiple projects to achieve the program's strategic objectives and benefits (Apte & Rendon, 2007; Project Management Institute [PMI], 2008). A systematic program management approach includes the following basic project management concepts: project life cycle, integrated processes, project team structure, a project manager, and a suitable organizational structure (Apte & Rendon, 2007). These project management concepts are examined in further detail in the following paragraphs.

The first project management concept we examine is the project life cycle. The Project Management Institute (PMI) *Project Management Body of Knowledge (PMBOK*; 2008) defines *project life cycle* as a collection of generally sequential phases whose name and number are determined by the control needs of the organization(s) involved in the project. By dividing the project into phases, management is more effectively able to control activities within each phase and the overall progress of the project (Apte & Rendon, 2007). The *Defense Acquisition Guidebook* (DAU, 2012) breaks the project life cycle into the following phases: material solution analysis, technology development, engineering and manufacturing development, production and deployment, and operations and support.

Integrated processes are an essential element of a systematic program management approach and are vital to project success. The PMI *PMBOK* (2008) identifies five project management process groups required for any project. These groups are initiating, planning, executing, monitoring and controlling, and closing processes (PMI, 2008). Each process group includes functional phases, such as cost and schedule management, that are part of a respective process group (PMI, 2008). A structured program management approach integrates these processes to ensure coordination and unity of the total program effort.

The project team structure, with cross-functional expertise across various disciplines, is necessary to effectively integrate project management efforts to achieve the project's objective. In collaboration with the project manager, these

integrated subject-matter experts must coordinate and determine which, and to what degree, respective integrated processes are appropriate for the effort (PMI, 2008).

For an effective program management approach, a project manager must be designated by the organization to synchronize the project activities of the various functional team members towards the overall project objectives. Complex projects require the project manager to oversee activities and determine applicable resource applications to these activities (PMI, 2008).

The appropriate organizational structure is a vital element of a disciplined program management approach. Organizational structures influence how projects are conducted and range from functional to project specific, with various matrix types in between (PMI, 2008). Selection of a suitable organizational structure that supports the integrated processes, project teams, and project manager will substantially contribute to project success (Apte & Rendon, 2007). In the next section, we look at how program management concepts are currently applied to weapons systems acquisitions.

2. Application of Program Management Concepts to Weapons Systems Acquisitions

Program management concepts are well established for defense weapons systems acquisitions and are essential practices for complex high-technology weapons systems projects (Apte & Rendon, 2007). The defense acquisition life cycle is a disciplined management process that takes acquisition programs through a series of phases, milestones, decision points, and reports. Control gates assist with keeping projects within the three major constraints of cost, schedule, and performance (Rendon & Snider, 2008). DoD Instruction 5000.2 (OUSD[AT&L], 2008) establishes the Defense Acquisition Management System as the project life cycle for Major Defense Acquisition Programs and was updated in 2008 to specifically include services. (See Figure 3 for an illustration of the milestones and phases of the DoD Acquisition Management Framework.) The program manager is the designated individual responsible for program objectives; is accountable for cost, schedule, and

performance; and reports to the Milestone Decision Authority (MDA; OUSD[AT&L], 2003). Integrated processes and integrated product teams (IPTs), which are established by DoD 5000 regulations, enable program managers to maintain continual and effective communication throughout project execution (Apte & Rendon, 2007). The DoD relies substantially on tailored organizational structures to enhance integration of project processes and project teams for weapons systems acquisition programs (Apte & Rendon, 2007). The DoD typically uses matrix and projectized (project specific) organizational structures for weapons systems acquisitions. The type of tailored organizational structure used for a specific project depends on factors such as the number of functional areas involved in the project, the degree of integration required within the functional areas and between the organization and customer, and the organization's experience level for the work that the project requires (Apte & Rendon, 2007). Integrated project teams are cross-functional teams with subject-matter experts from multiple functional areas, including engineering, contracting, financial management, logistics, and legal (Apte & Rendon, 2007). These teams are led and managed by the designated project manager who ensures coordination and integration to accomplish the project's objective (Apte & Rendon, 2007). In the next section, we examine how these proven program management concepts for weapons systems can be applied to services acquisitions.
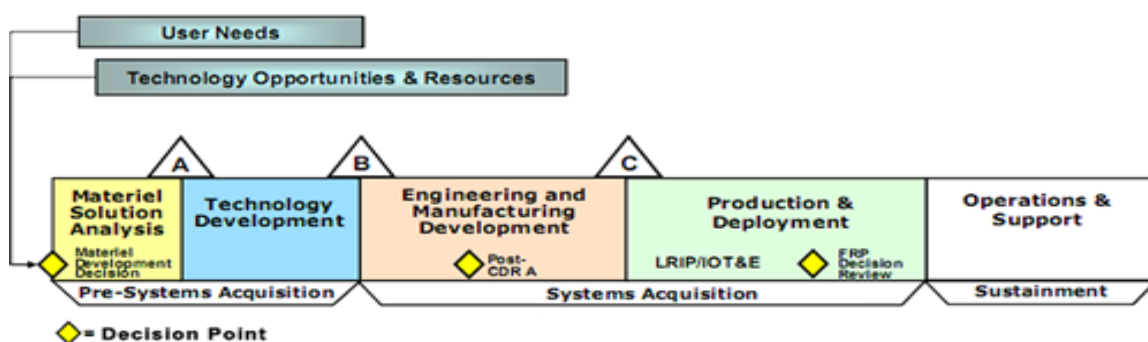
Figure 3.   The Defense Acquisition Management Framework
(DAU, 2012)

3. Application of Program Management Concepts to Services Acquisitions

Apte and Rendon (2007) assessed current services acquisition practices at various activity levels of the Air Force and examined how a program management approach and concepts can be applied to successfully manage services acquisition programs. The findings showed that at the installation level, the acquisition of services was managed ad hoc as opposed to using a program management approach (Apte & Rendon, 2007). The Air Force used some program management concepts at the installation level, but they were not institutionalized throughout the organization and were inconsistent in application (Apte & Rendon, 2007). Apte and Rendon (2007) found that the traditional method used for the acquisition of services does not utilize a program management approach. The traditional method lacked the disciplined use of project life cycles, integrated processes, designated program managers, integrated cross-functional teams, and an appropriate organizational structure.

However, Apte and Rendon (2007) observed two organizations at the major-command level that are applying innovative program management approaches in terms of organizational structure, project life cycle, integrated processes, and project teams for the successful acquisition of services. The Air Education and Training Command (AETC) integrates critical processes by utilizing a disciplined and structured project life cycle for services acquisitions (Apte & Rendon, 2007). Figure 4 depicts the various phases within the AETC services project life cycle. In addition, the AETC utilizes formal project teams for pre- and post-award activities and an integrated and matrixed organizational structure for the acquisition of support services (Apte & Rendon, 2007). Apte and Rendon (2007) found the Air Combat Command (ACC) Acquisition Management and Integration Center (AMIC) to be a fully integrated organization that employs the critical program management concepts discussed previously and includes all essential elements of an acquisition program office. The AMIC provides integrated cradle-to-grave services acquisition support, which enables a resource-efficient process-oriented approach for acquisitions (Apte

& Rendon, 2007). Both the AETC and the AMIC successfully demonstrated a disciplined program management approach for the acquisition of services (Apte & Rendon, 2007). The research clearly demonstrated the viability and applicability of a program management approach to services acquisitions. This program management approach provides a process-oriented framework for improved services acquisition outcomes.

The activities and steps of the services contracting process are an integral component of the acquisition life cycle and are discussed in the next section.

Define	Source	Buy	Ensure Quality	Administer	Release

Figure 4. Services Project Life Cycle
(Apte & Rendon, 2007)

D. Services Contracting Process

Contract management is an integral part of the defense acquisition management system and is defined as "the art and science of managing a contractual agreement throughout the contracting process" (Rendon & Snider, 2008). It is the means through which progress is made in the different phases of the acquisition life cycle. The acquisition of all systems, goods, and services is done through contracting and is guided by the FAR. The contracting process involves six primary phases conducted by both a buying organization (government) and a selling organization (contractor), each with a unique contract management perspective (see Figure 5 for an illustration). The buyer's perspective involves procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout/termination (Rendon & Snider, 2008). The seller's perspective

involves similar phases that align with the buyer's phases. They are pre-sales activities, bid/no-bid decision-making, bid/proposal preparation, contract negotiation and formation, contract administration, and contract closeout/termination (Rendon & Snider, 2008). Since this research is about the problems of services contracts within the U.S. government, we discuss only the buying (government) side of the contracting process.
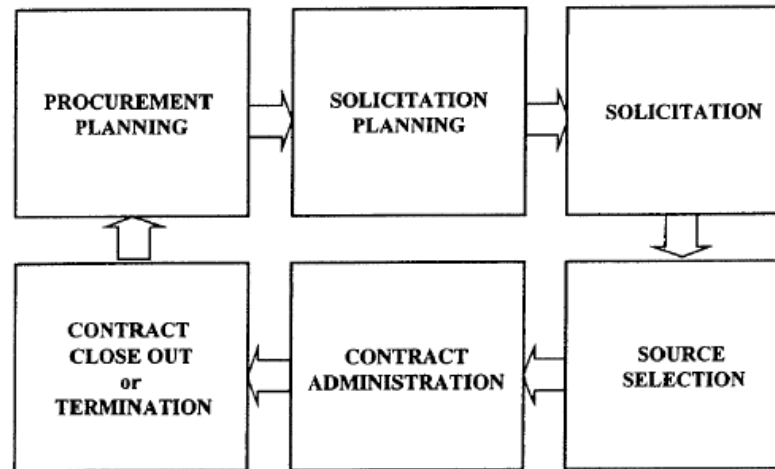
Figure 5.   Procurement Process
(Rendon & Snider, 2008)

Phase 1 for the buyer is the procurement planning process and involves identifying which business needs can be met by reaching outside the organization for products and services (Rendon & Snider, 2008). The government decides if procurement is really necessary and, if so, what, how much, and when to procure (Rendon & Snider, 2008). Part of the planning process includes determining and defining the requirement and conducting market research (Rendon & Snider, 2008). Budgets and cost estimates are developed by both the buyer and seller, and preliminary work documents that delineate what services will be performed are written (Rendon & Snider, 2008).

Phase 2 is solicitation planning. The process involves determining which procurement method the government will use to procure the goods or services, such

as through negotiated proposals or sealed bids. The type of contract (cost versus fixed price) and the contract/award strategy (lowest price versus price trade-off) are determined, criteria are developed for evaluating proposals, and the solicitation documentation is drawn up with contract terms and conditions (Rendon & Snider, 2008).

Phase 3 consists of the solicitation process. Solicitation involves receiving bids and proposals from potential sellers (contractors). In order to receive bids and increase competition, the government must advertise that there is a procurement opportunity (Rendon & Snider, 2008). To do this, the contracting officer transmits a notice though the Government Point of Entry (Rendon & Snider, 2008). After the government issues the solicitation, contractors prepare offers and attempt to persuade the government to accept their bid (Rendon & Snider, 2008).

Phase 4 is the source selection and involves receiving all the bids or proposals from the sellers. The proposals are then evaluated against the criteria previously set in the solicitation planning phase (Rendon & Snider, 2008). Before the contract can be awarded, contract negotiations must occur between the government and the contractor to ensure that there is full agreement on cost, schedule, terms and conditions, and contractor performance (Rendon & Snider, 2008).

Phase 5, contract administration, is the most critical phase in the contracting process. Both the government and the contractor conduct contract administration, each ensuring that performance from both sides meets the contractual obligations. Both parties attend a pre-performance conference to ensure that everyone understands the contract requirements and to discuss protocols for performance management, communication, and contract change management (Garrett & Rendon, 2005). Any changes or modifications to the contract are executed, by authorized individuals only, through a formal process (Rendon & Snider, 2008). The government closely monitors the contractor for quality, cost control, and performance. Best practices in contract administration include, but are not limited to,

establishing a system to verify contractual conformance, assigning responsibility to check actual performance against requirements, ensuring that someone takes appropriate corrective action to significant variances, and maintaining all contract documentation (Garrett, 2011).

Phase 6 is contract closeout or termination. A government contract can end when the contractor successfully completes the job, when the government deems that it is convenient to terminate the contract, or when the contractor is in default (Rendon & Snider, 2008). Regardless of why the contract is closed, all final administrative and legal matters must be completed (e.g., price adjustments and final payments made, claims settled, final products or services accepted, and past-performance reports documented; Rendon & Snider, 2008).

Recent studies on the contract management process in the DoD have indicated that, on the average, the process capability for the procurement planning, solicitation planning, solicitation, and source selection phases are at the Structured level (Level 3), meaning that these processes are not fully integrated throughout the other functional areas of the agency, even though they are institutionalized. They are also not measured or continuously improved. Additionally, on the average, the process maturity level for the contract administration and contract closeout phases are at the Basic level (Level 2), meaning that these processes are not sufficiently institutionalized within the contracting department, even though they are somewhat established with some documentation, nor are these processes fully integrated throughout the other functional areas of the agency (Rendon, 2009, 2010, 2011).

Each of the phases in the contracting process has activities performed by different individuals, each of whom has a stake in making sure that a project/program is performed in accordance with their organization's regulations. These *stakeholders* can affect, or can be affected by, the accomplishment of their organization's objectives (Freeman, 1984). Stakeholder Theory describes this concept and is discussed next.

E.   Stakeholder Theory

In the private sector, Stakeholder Theory is described as a corporation that identifies the people who have a stake or interest in that corporation and then acts accordingly to further the interests of those stakeholders (Cleland, 1986). The main assumption of this theory is that the purpose of the corporation is to generate and dispense some form of wealth to various stakeholders, and that in order to achieve that purpose, all of the stakeholders cooperate (Freeman, 1984). The word *stakeholder* originated in the 1960s at the Stanford Research Institute (SRI) with respect to the view that corporate management should only be concerned with the corporation's stakeholders (Parmar, Freeman, Harrison, Wicks, Purnell, & De Colle, 2010). Figure 6 illustrates Stakeholder Theory. This theory, applied to government contracting, includes all stakeholders concerned with a certain project. The project is the corporation, and the contractor and the various government roles on the acquisition team are the stakeholders. That is a very broad view because both the contractor and the government have numerous individual stakeholders. On the government side, there is the contracting officer (CO), the program manager (PM), the contracting officer representative (COR), the financial managers, and the customers who use the final product. On the contractor side, there is the contracts manager, the contract specialist, the program manager, all subcontractors conducting business with that company, all suppliers who provide goods or services to that company, and various executives who have a vested interest in the success of the company. This is a serious challenge for most managers because the stakeholder management approach views success as assessing the impact of every decision made on all stakeholders through the services acquisition process (Cleland, 1986).
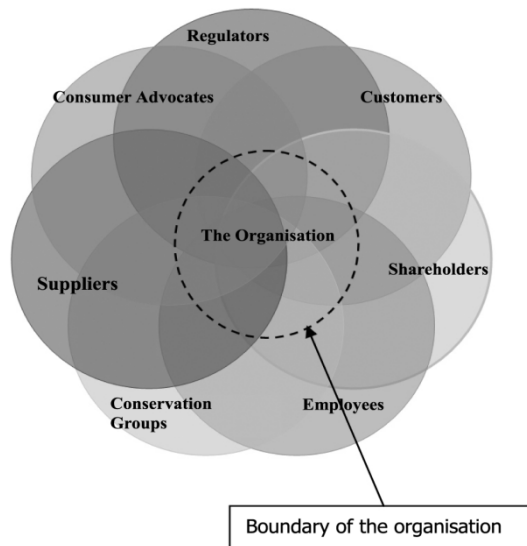
Figure 6. A Schematic Model Illustrating the Proposed Stakeholder Theory of the Organization
(Parmar et al., 2010)

As stated earlier, the CO, PM, COR, financial manager, and customer are all government stakeholders on various projects that fall under their sphere of influence. As a result of their differing roles and responsibilities, their definitions of success cover a wide range and are often in conflict with each other in terms of importance of the factors measured. These stakeholders are described in detail in the next section.

F.   Stakeholders in DoD Services Contracts

1.   Contracting Officer

The government obtains defense systems, equipment, and services from private-sector sources. Since a contract is the primary means of acquisition, contract management is a set of important skills and knowledge that is of great value in defense acquisition projects (Rendon & Snider, 2008). The FAR (2012) defines the CO as an agent of the government with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. Not only is the CO responsible for performing all contract functions, but the CO must also be able to aid in requirements development (DoD, 2011). The CO is the principal

business advisor to the acquisition team, and the role's specific responsibilities include forming a business strategy, participating in source selection, and possibly administering the resultant contract (DoD, 2011). He or she is the individual responsible for making sure that contracts are planned, executed, and closed out in accordance with agency regulations and statutory requirements (Rendon & Snider, 2008). COs must provide support to help achieve the contract objectives of cost, schedule, and performance. COs are the only agents with the ability to bind the government, and any individual who attempts to do so without delegated authority will make an unauthorized commitment (Rendon & Snider, 2008). A detailed listing of contracting officer responsibilities is presented in the FAR (2012).

2. Program/Project Manager

The PM, also called a program director or a project manager, is the designated person responsible for accomplishing program objectives and ensuring that the desired results are achieved (Brown, 2010). The PM has a very involved and important role in acquisition and procurement because he or she is held accountable for overall cost, schedule, and performance. The PM identifies, plans, and controls various aspects of the project/program. These areas include, but are not limited to, delivery requirements, scheduling, conducting market research, and, normally, participating in source selection (DoD, 2011). The PM should be the one most familiar with the program requirements (DoD, 2011).

The PM must also have aptitude in contracting, financial management, and cost estimating. And, more important, his or her management and leadership skills come into play when dealing with management challenges in day-to-day program execution (Wood, 2010). The PM's role is not an easy one, and the GAO has historically identified his or her lack of program management expertise as the primary cause of cost and schedule overruns in major acquisitions (GAO, 2005). Major weapons systems typically establish a program office; however, this is not always the case with services acquisitions (GAO, 2011a). When there is no PM

designated on a services contract, the contracting organization will have to work directly with the requiring organization (GAO, 2011a).

3. Contracting Officer Representative

Complex contracts for services require the addition of a technical expert, one who is intimately involved in the contract and has expert technical knowledge of the system or service being procured—this person is the COR. The COR is the onsite technical specialist who assesses performance against standards and then records and reports this information to the CO (GAO, 2011a). Only a U.S. government employee (civilian or military) or a North Atlantic Treaty Organization (NATO) partner can fill the role of a COR; the CO should never fill this role (FAR, 2012). The COR is formally appointed in writing by the contracting officer and must have specific qualifications and experience appropriate for the responsibility delegated to them (FAR, 2012). The COR should be deeply involved in the entire acquisition and procurement process and will assist the contracting officer in developing the quality assurance plan, the technical requirements in the contract, and other pre-award activities. The COR does not have the same authority as the contracting officer, so he or she cannot make any commitments or changes that affect the terms of the contract (FAR, 2012). The COR assists the contracting officer and, along with the PM, becomes the focal point of the contract by monitoring all of its day-to-day aspects, as well as inspecting and accepting services (DAU, 2012). A comprehensive list of the specific responsibilities of a COR can be found in the FAR (2012).

4. Finance Manager

The finance manager is another critical individual in contract management and is well versed in the financial management regulation (FMR). His or her role is to serve as the fiscal and budgetary advisor to the acquisition team (DoD, 2011). The government finance manager is responsible for ensuring compliance with the statutory requirements of fiscal law (e.g., that proper authorization is granted for expending funds [purpose], the contract obligations occur during the time limits

prescribed by appropriation [time], and adequate funding is available [amount]; Rendon & Snider, 2008).

5.   Customer or End User

The customer's role in the acquisition process is to have a detailed knowledge of the requirement so that it can be clearly conveyed to contractors (DoD, 2011). The customer helps to determine whether trade-offs are available for a requirement and what these trade-offs are (DoD, 2011). The customer plays a vital role in the acquisition process because, ultimately, he or she is a member of the team that drives how well the requirements document reflects their needs.

The roles and responsibilities of each of the stakeholders differ, and as a result, their definitions of what constitutes a successful contract cover a wide range. Often these definitions are in conflict with each other in terms of the importance of the factors measured. Identifying how each of the stakeholders determines success is vital to contract administration. In the next section, we discuss a study that identified seven factors that contribute to contract management success.

G.   Success Factors

As described earlier in this chapter, there are six phases in the contract management process. Of these six phases, only one is dedicated to contract administration. GAO audits have consistently stated that contract administration needs to be improved. Successful contract administration is dependent on effective contract management. The question then becomes, what determines the success of a contract? Rendon (2012) conducted a study asking this question specifically of DoD contracting. In the study, Rendon surveyed eight defense agencies and two defense contractors over the course of four years. Since the survey was designed for defense procurement, it was administered only to warranted contracting officers and individuals fully qualified in government contracting. The results of the survey identified seven critical success factors (CSF) in defense procurement: Workforce,

Relationships, Processes, Resources, Leadership, Policy, and Requirements (Rendon, 2012).

Rendon analyzed and summarized over 2,000 responses to the survey into the seven CSF categories. The Workforce factor in the study related to using proper staffing, hiring, and recruitment processes; having the right number of personnel; and having experienced, trained, and competent people. Relationship responses involved communication, cooperation, and coordination at all levels within and between agencies. The Processes category involved having a consistent, efficient, standardized, enforced, streamlined, and documented contracting process. Resource responses included the need for contract tracking tools, automated contract writing systems, technical support, and adequate travel funds. Leadership responses related to the need for clear lines of authority, strong management support, and an empowered leadership. The Policies category included the need for clear and concise guidance and regulations. The final CSF, Requirements, related to timely procurement request packages, well-written statements of work, proper technical reviews, and adequate procurement funding (Rendon, 2012).

A comparison of the DoD and industry/contractor responses shows some interesting differences. The DoD considers Workforce-related elements to be the most important success factor and Requirements-related elements to be the least important. Industry responses showed that Processes were the most important factor and Policies were the least important. The overall results of the study provide some thought-provoking insights into the differences between organizations and the disconnection that can occur when measuring and defining the success of a contract. Agency Theory, described in the next paragraph, explains how and why this disconnection can occur.

H.   Agency Theory

Agency Theory is aimed at the relationship that arises when one party (the principal) engages another party (the agent) to perform a specific effort focusing on

a certain outcome (Eisenhardt, 1989). The theory mainly discusses these relationships and describes how the principal and the agent are engaged in cooperative behavior, but have differing goals and attitudes (Eisenhardt, 1989). Agency Theory states that the principal can limit this difference by creating suitable incentives for the agent or creating sufficient means to monitor the agent (Hill & Jones, 1992). When applying this theory to services contracts, the government is the principal and the contractor is the agent. The government employs the contractor to perform specific tasks that are defined in great detail within the contract. As described in the previous section, the government and contractor place differing importance on each of the success factors—and this is one of the cornerstone assumptions of Agency Theory (Hill & Jones, 1992). The government and the contractor clearly have different goals in mind when executing a services contract. The government's goal is to have the services performed to a certain standard in the most effective way for a fair and reasonable price (FAR, 2012). The contractor wishes to stay in business so its ultimate goal is to generate profit. The government incentivizes the contractor by providing a fee—and in some cases, a price premium—in order to facilitate desired behaviors.

Agency Theory describes the complex government-contractor relationship and how a principal and an agent can be involved in a cooperative effort but have differing goals and attitudes (Eisenhardt, 1989). In the next section, we summarize this literature review and build a foundation for Chapter III.

I.   Summary

This chapter introduced past and current literature on the deficiencies in services contracting, the need for a program management approach to the services contracting process, the current services contracting process, Stakeholder Theory and the various stakeholders on the acquisition team, critical success factors in government contract management, and the application of Agency Theory to the services contracting process.

The next chapter describes our research methodology, including the data collection process, a description of the participant commands, a list of the demographic questions asked, a brief description of the survey questions related to the core research, and the type of analysis we conducted.

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III.   Research Methodology

A.   Introduction

In this chapter, we explain how we collected and analyzed our data in order to meet our objectives and answer the research questions discussed in Chapter I. Specifically, we discuss the creation of the survey and our analytical process. We also include a description of the quantitative methods we used to analyze the data collected from the Navy contracting commands. The objective of the research was to build upon the results found in a prior study, so that we could conduct a more in-depth research analysis that further explains the factors that influence the success of services contracts. We analyze the collected data quantitatively in order to draw conclusions about the definition and measurement of the success of services contracts, and compare the similarities and differences among the stakeholders surveyed.

B.   Overview

Our research methodology included development of a survey instrument to collect empirical data for answering our research questions. The survey was deployed to the various stakeholders at the participating commands. We then analyzed the data using descriptive statistics to provide recommendations and conclusions.

C.   Survey Development

Under the guidance of Professors Apte and Rendon, we developed a web-based survey using the survey software Survey Monkey. We first tested the survey on Naval Postgraduate School (NPS) contracting students for validity and cohesiveness, and used the survey to collect empirical data regarding the definition and measurement of services contracts. The focus of the survey was on answering the following core research questions:

- How do different stakeholders define successful services contracts within the Navy?

- How do different stakeholders measure services contracts within the Navy?

We took the qualitative results from previous research conducted by Miller, Newton, and D'Amato (2012) and then identified four metrics—process, cost, schedule, performance—about which we could ask further detailed questions.

The survey questions consisted of seven demographic questions and 12 research questions that addressed our two core research questions:

1. What is your branch of Service or Service affiliation?

2. What organization are you affiliated with?

3. What is your current, primary, functional role?

4. What is your DAWIA level certification?

5. How many years of acquisition experience do you have?

6. What type of services do you predominantly procure?

7. What broad category do the majority of your contracts fall into?

8. How do you define a successful service contract?

9. How do you measure the success of a service contract?

The purpose of the demographic questions was so that we could differentiate our results and compare and contrast to determine trends across different areas, such as functional role, DAWIA level, and type of service provided.

The purpose of the core research questions was to establish the importance of different factors when defining and measuring the success of services contracts. We asked several questions related to the contracting process, as well as questions concerning different outcomes such as cost, schedule, and performance. Our process questions involved, but were not limited to, the level of administrative load, occurrence of protests, and levels of communication between all stakeholders. The

survey questions associated with cost dealt with overruns, fair and reasonable pricing and profit, as well as cost control. The schedule questions were related to meeting major milestones and a timely completion of the contract. Performance questions were connected to customer satisfaction, adherence to the statement of work (SOW), and reliance on COR reports. We also used these factors to differentiate responses in order to determine trends.

The survey provides specific questions related to how commands define the success of a services contract. The first two questions ask participants to rank various definitions relating to the four metrics in order of most important (1) to least important (5). The next three main questions ask participants to rate definition statements relating to process, schedule, cost, and performance. These questions use a Likert scale asking level of agreement, importance, and amount of time devoted by the participants. The Likert scale had a range of (1) to (5), with (1) representing a negative response and (5) representing a positive response.

The survey also asks specific questions related to how commands measure the success of a services contract. The first two questions ask participants to rank various measurements relating to the four metrics in order of most important (1) to least important (5). The last question in the section asks participants to rate on a Likert scale how often the organization conducts certain actions that pertain to the measurement of success concerning process, schedule, cost, and performance.

Finally, the survey includes a final question soliciting any general comments that the participants may wish to share regarding the topic of defining and measuring successful services contracts. Figure 7 contains a diagram of the survey questions.
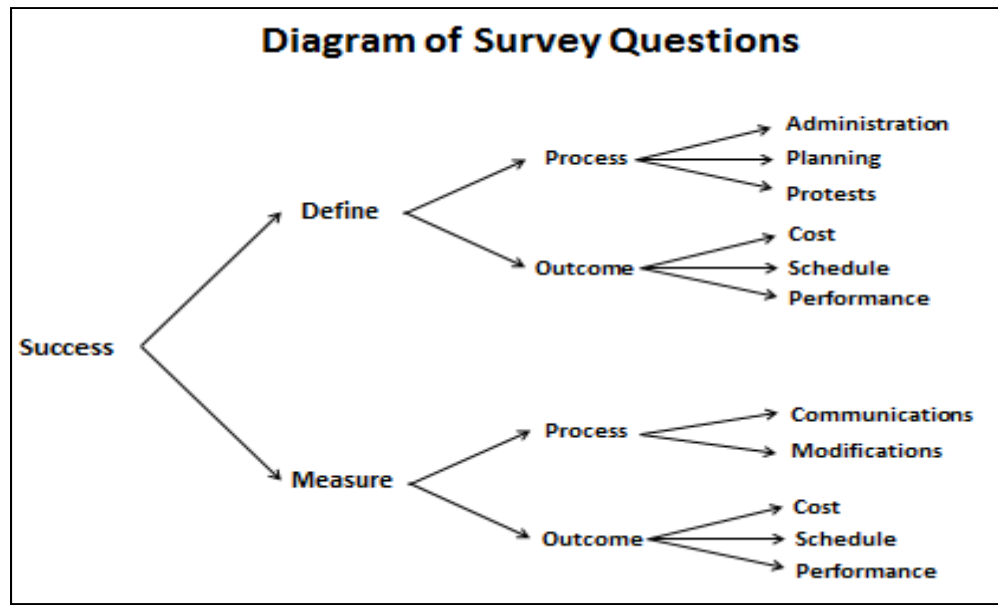
Figure 7.   Diagram of Survey Questions

D.   Survey Deployment

We conducted a survey with the major stakeholders in the services acquisition process. This included the PMs, COs, CORs, contractors, and end users associated with the following contracting commands: the Fleet Logistics Center (FLC) Philadelphia, FLC Jacksonville, FLC Norfolk, FLC Puget Sound, FLC San Diego, Naval Sea Systems Command (NAVSEA), Military Sealift Command (MSC), and Space and Naval Warfare Systems Command (SPAWAR).

1.   Participating Commands

NAVSEA's mission is to engineer, build, buy, and maintain ships, submarines, and their combat systems that meet the United States Naval Fleet's current and future operational requirements. As the largest of the Navy's five system commands, the NAVSEA has a $30 billion fiscal year budget, accounting for 25% of the Navy's entire budget. To accomplish their mission, the NAVSEA manages billions of dollars in annual foreign military sales and 150 acquisition programs. It plays a critical role in the Navy Enterprise and strives to be an efficient provider of defense resources for the U.S. (NAVSEA, n.d.).

SPAWAR is one of three major Department of Navy acquisition commands. Its mission is to design, develop, and deliver advanced communications and information dominance systems to the fleet. It supports the full life cycle of product and services delivery, which includes research, engineering, acquisition and deployment, and operations and logistics support services. The SPAWAR's products and services "transform ships, aircraft and vehicles from individual platforms into integrated battle forces, enhancing information dominance and awareness among Navy, Marine, joint forces, federal agencies and international allies" (SPAWAR, n.d.). In order to accomplish their mission, SPAWAR partners and contracts with industry, including small businesses, to get the best value for information technology. In 2010, they obligated $1.21 billion to small businesses and $4.84 billion to large businesses (Esaias, 2011).

The MSC is composed of over 100 non-combatant, civilian-crewed ships. Its mission is to support our nation by replenishing U.S. naval ships, moving military cargo and supplies, strategically prepositioning combat cargo at sea around the world, and conducting specialized missions. The MSC is organized around five mission areas: combat logistics force, special mission, prepositioning, services support, and sealift. These worldwide operations are financed through the Navy Working Capital Fund and the Transportation Working Capital Fund. Their budget of about $3 billion is reimbursed by direct appropriations or by funds transfers by MSC customers (www.msc.navy.mil).

The FLCs Philadelphia, Jacksonville, Norfolk, Puget Sound, and San Diego are just some of the 12 total subordinate commands of the Naval Supply Systems Command (NAVSUP). NAVSUP as a whole provides 25 distinct products and services, ranging from supply chain management, warehousing, and foreign military sales, to postal services and quality of life programs (NAVSUP, n.d.). Each subordinate command is responsible for providing logistics, business and support services, and products to United States naval activities and other joint, civilian, and allied forces within their area of responsibility. They "deliver combat capability

through logistics by teaming with regional partners and customers to provide supply chain management, procurement, contracting and transportation services, technical and customer support, defense fuel products and worldwide movement of personal property" (NAVSUP, n.d.). They are given contracting authority by NAVSUP, contracting for over $4 billion annually in supplies, services, and equipment, and make about 120,000 individual purchases (GlobalSecurity.org, n.d.).

E.   Analytical Process

We chose ranking and Likert scale questions to gain quantitative data for our research and to narrow down responses from various stakeholders. We reported and analyzed the mean of Likert scale responses and all responses that received a rank of (1) or (2). We examined the data to determine trends and identify correlations. Initially, we took an overarching view of the responses, including all stakeholders across all demographics. We conducted further analysis by breaking down the demographics into major stakeholders, DAWIA level certification, and type of service procured. In Chapter IV, we present this quantitative data in graphical format.

F.   Summary

In Chapter III, we identified the Navy contracting organizations we surveyed, how we created the survey, and how we collected and analyzed data. In Chapter IV, we present the results of the data and conduct an analysis of the findings, and in Chapter V we draw conclusions and make recommendations.

IV. Survey Instrument, Results, and Analysis

A. Introduction

In this chapter, we examine the survey responses. The objective of this research was to examine different stakeholders' definitions and measurements of successful services contracts. We designed a survey of 19 questions and presented them to the major stakeholders in the services acquisition process. The survey was distributed to the following activities: NAVSEA, SPAWAR, MSC, FLC Philadelphia, FLC Jacksonville, FLC Norfolk, FLC Puget Sound, and FLC San Diego. Our response rate is shown in Table 1. We received such a small number of responses from requirements managers, financial managers, contractors, and customers that their responses were not incorporated in this report for analysis purposes. These respondents are combined in the "other" category in Table 1.

Table 1. Survey Response Rate

STAKEHOLDER	# SURVEYS DEPLOYED	# SURVEYS ANSWERED	RESPONSE RATE
PROGRAM MANAGER/PROJECT OFFICER	94	15	16%
CONTRACTING OFFICER REPRESENTATIVE	104	27	26%
CONTRACTING OFFICER/ CONTRACT SPECIALIST	280	126	45%
AGGREGATE (PM, COR, PCO)	478	168	35%
OTHER	365	10	2.7%
TOTAL	843	178	21%

When we examine the ranking questions in this section, the term "most important" refers to the number of factors that received the ranking of (1) or (2). We felt that this was the most accurate way to capture the nature of our participants' responses. For example, a COR may feel that performance factors should be

ranked (1) every time, but they feel that process factors are also very important so they may have responded with a rank of (2). We believe that this is the most effective way to report and analyze the results when ranking is concerned.

B. Aggregate Findings

1. Defining the Success of a Service Contract

We first took an overarching view of our survey findings. We did not differentiate between functional roles, DAWIA levels of certification, contract type, or organization. However, we did separate our findings under the broad categories of process and outcome. Outcome results included the questions associated with cost, schedule, and performance. Our survey resulted in 168 respondents, spanning major stakeholders. The Likert scale responses were assigned a value of (1) through (5), with the higher value representing a favorable response. We examined the means of each set of Likert scale–type questions and found that, when defining the success of a services contract, outcomes are considered slightly more important than processes. The overall mean with relation to outcomes was 4.08, while process responses produced a mean of 3.97. Our findings are displayed graphically in Figure 8.

We then separated our findings further within the broad category of outcomes to the narrower categories of cost, schedule, and performance. Performance-related questions resulted in the highest mean, 4.29, while cost-related questions produced a mean of 4.03, and schedule-related questions produced a mean of 3.93.

One hundred and sixty-eight respondents were asked to rank different factors related to defining the success of a service contract. These questions also dealt with different aspects of processes and outcomes. Of the 172 respondents, 40% felt that process-related factors were the most important. Sixty percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 9.

Breaking down the outcome-related factors further, 15% of respondents felt that cost-related factors were the most important, 19% felt that schedule-related factors were most important, and 26% felt that performance-related factors were most important.

Figure 8.   Means of Aggregate Stakeholder Definitions of Success

Figure 9.   Aggregate Stakeholder Ranking of Definitions of Success

2. Measuring the Success of a Service Contract

Our survey also had participants rate on the Likert scale the various degrees of importance, and the extent to which they agreed or disagreed with, various factors related to how they measure the success of a service contract. Again, these factors related to either processes or outcomes. The overall Likert scale mean for all demographics with relation to processes was 2.48, and outcomes displayed an overall mean of 3.71. Clearly, outcomes are more important to our participants as a whole. Our findings are displayed graphically in Figure 10.

If we look at the distinct factors within the outcome category—cost, schedule, and performance—the overall Likert means were 3.96, 3.84, and 3.30, respectively.

One hundred and sixty-eight respondents were asked to rank different factors related to measuring the success of a service contract. Of the 168 respondents, 46% felt that process-related factors were the most important. Fifty-four percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 11.

Breaking down the outcome-related factors further, 19% of respondents felt that cost-related factors were the most important, 12% felt that schedule-related factors were most important, and 23% felt that performance-related factors were most important. All results for aggregate stakeholders are displayed in table format in Appendix A, Table A2.
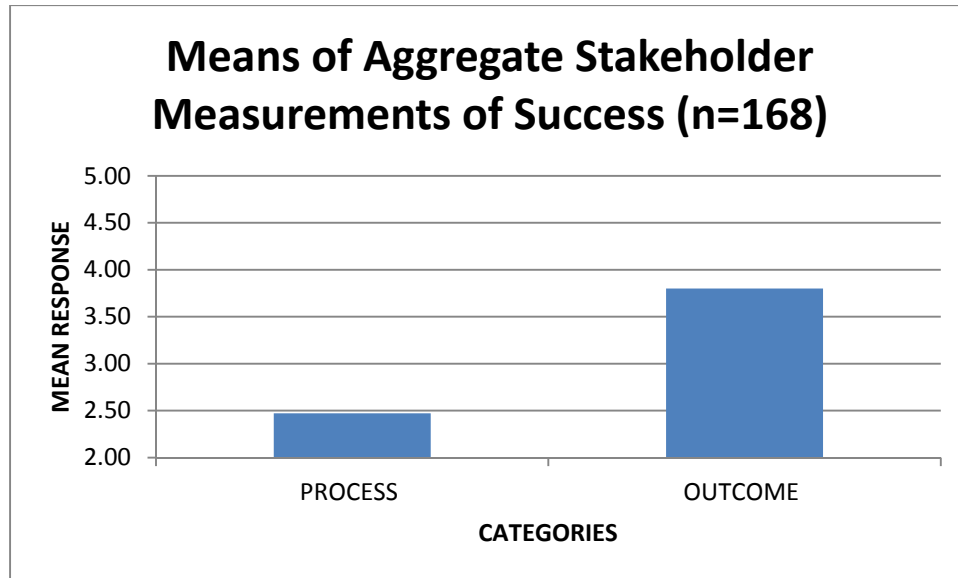
Figure 10. Means of Aggregate Stakeholder Measurements of Success
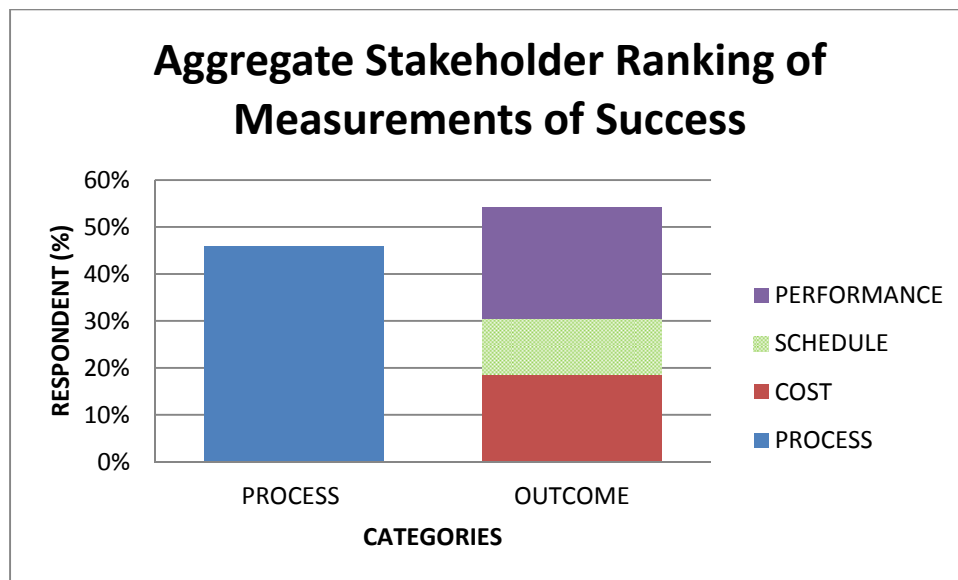
Figure 11. Aggregate Stakeholder Ranking of Measurements of Success

C.   Findings by Stakeholder

While examining our data, we found that we obtained the most responses from certain functional roles. PMs, CORs, and COs/Contract specialists accounted for 87% of our total responses. In this section, we examine and compare how each

of these functional areas defines success with regards to service contracts. COs and contract specialists were grouped under one category and from now on the term "CO" encompasses both demographics. We differentiated by functional role and made no other demographic distinctions. Our data include functional roles across all DAWIA levels, contract types, and organizations.

1. PMs', CORs', and COs'/Contract Specialists' Definitions of Success

a. Program Managers' Definition of Success

With regard to the Likert scale ratings from PMs, we found, based on the 15 responses we received, that this group considers outcomes slightly more important than processes when defining success. When defining the success of a service contract, PMs responded with a mean rating of 3.87 on process-related factors, and a mean of 4.13 when responding to questions with outcome-related factors. This is a small range, but PMs seem to feel that outcomes are somewhat more important when defining the success of a service contract. Our results are displayed graphically in Figure 12, with outcomes broken out with respect to cost, schedule, and performance.

Fifteen respondents were asked to rank different factors related to defining the success of a service contract. Of the 15 respondents, 41% felt that process-related factors were the most important. Fifty-nine percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 13.

Breaking down the outcome-related factors further, 11% of respondents felt that cost-related factors were the most important, 22% felt that schedule-related factors were most important, and 27% felt that performance-related factors were most important.
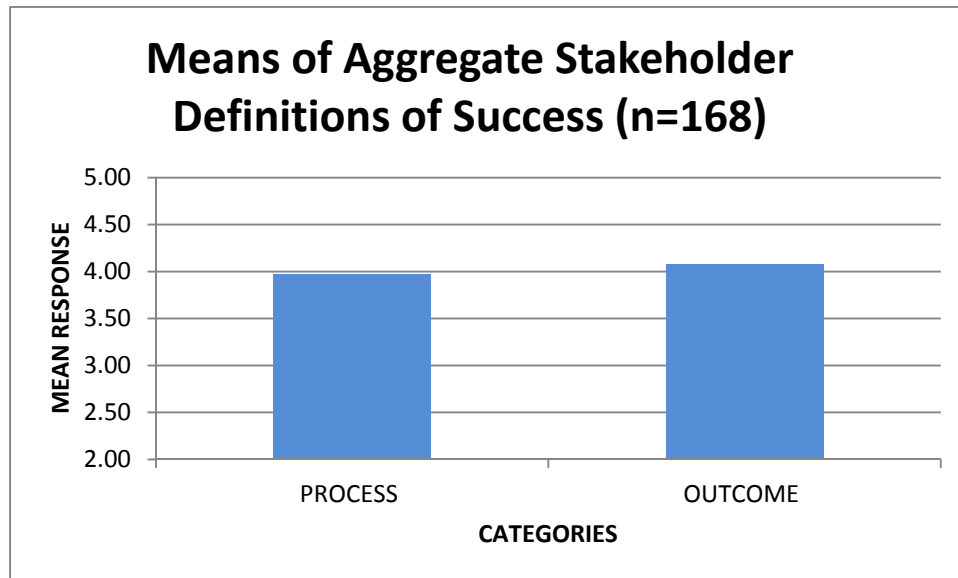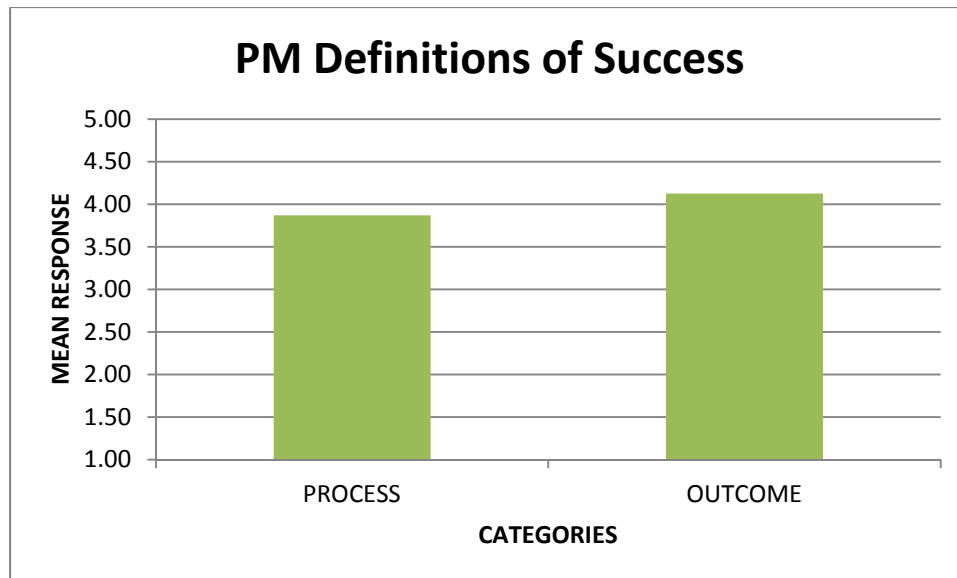
Figure 12. PM Definitions of Success
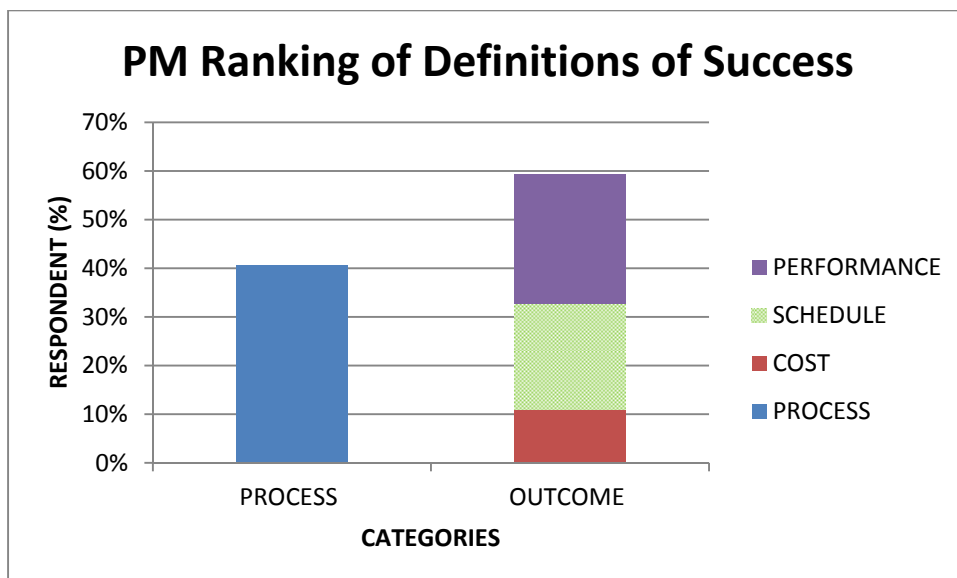
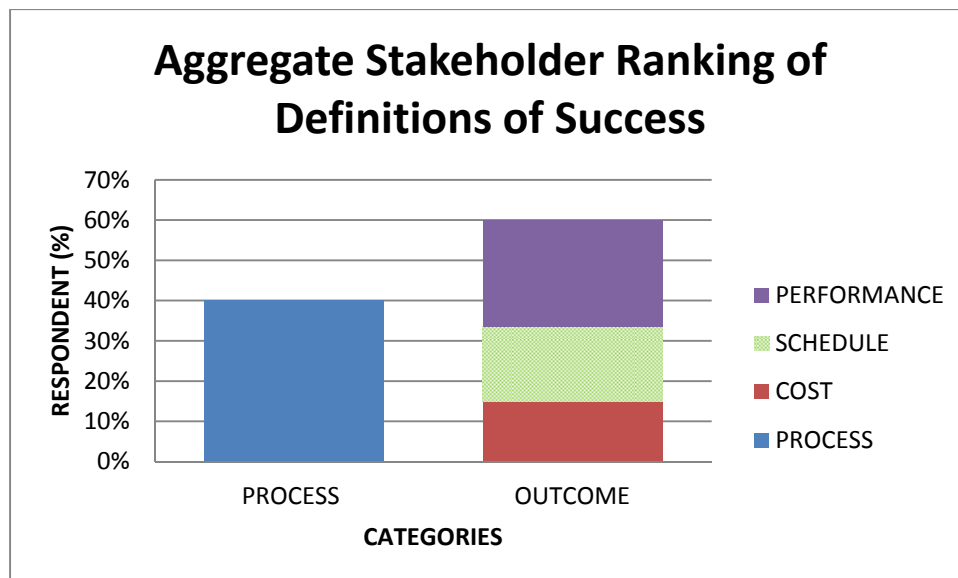**Figure 13. PM Ranking of Definitions of Success**

b.   Contracting Officer Representatives' Definition of Success

We received 27 responses from CORs to Likert scale–based questions related to their definitions of the success of a service contract. Process-related factors received a mean rating of 3.97, while outcome-related factors produced a mean rating of 4.15. The range of COR definitions on the Likert scale is also

relatively low, and CORs also appear to favor outcomes over processes when defining the success of a service contract. Our findings are displayed graphically in Figure 14.

Twenty-seven respondents were asked to rank different factors related to defining the success of a service contract. Of the 27 respondents, 39% felt that process-related factors were the most important. Sixty-one percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 15.

Breaking down the outcome-related factors further, 18% of respondents felt that cost-related factors were the most important, 19% felt that schedule-related factors were most important, and 24% felt that performance-related factors were most important.

Figure 14.   COR Definitions of Success

COR Ranking of Definitions of Success
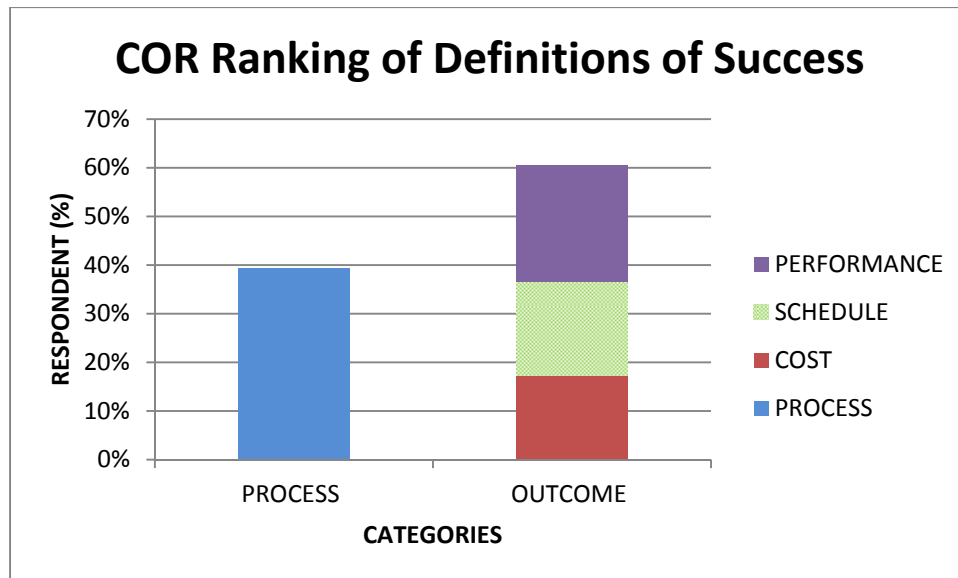
Figure 15.   COR Ranking of Definitions of Success

c.   Contracting Officers' and Contract Specialists' Definition of Success

We received responses from 126 self-identified COs/contract specialists when we asked them to rate their definitions of success on the Likert scale. Our data show that process-related factors achieved an overall mean rating of 3.97, and outcome-related factors received an overall mean rating of 4.15. These means are again extremely close and suggest that COs only slightly favor outcomes versus processes when defining the success of a service contract. Our results are displayed graphically in Figure 16.

On the Likert scale, COs/contract specialists rated cost-related factors with a mean of 3.98, they rated schedule-related factors with a mean of 3.91, and they rated performance-related factors with a mean of 4.27.

One hundred and twenty-six respondents were asked to rank different factors related to defining the success of a service contract. Of the 126 respondents, 40% felt that process-related factors were the most important. Sixty percent felt that

outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 17.

Breaking down the outcome-related factors further, 17% of respondents felt that cost-related factors were the most important, 15% felt that schedule-related factors were most important, and 28% felt that performance-related factors were most important.
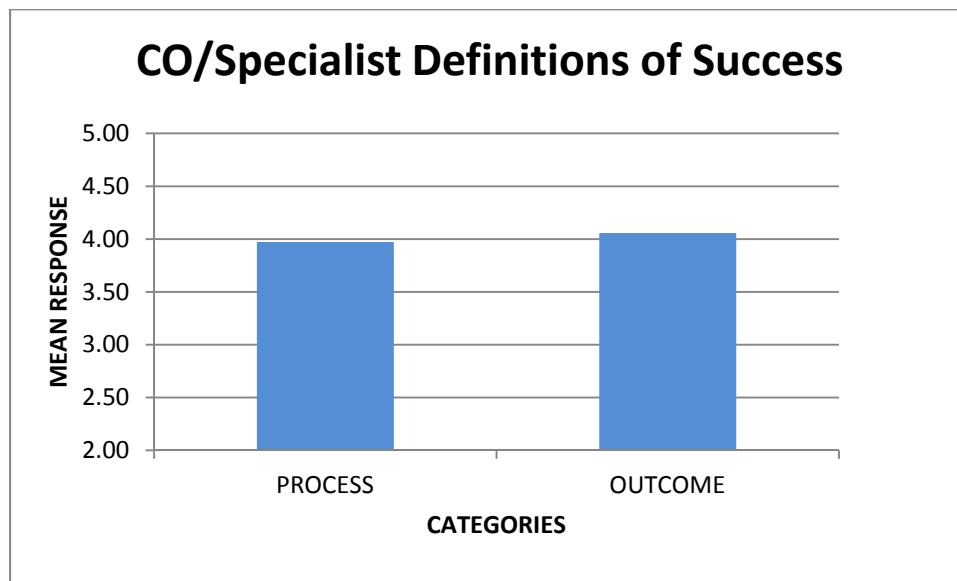
Figure 16.   CO Definitions of Success

CO/Specialist Ranking of Definitions of Success
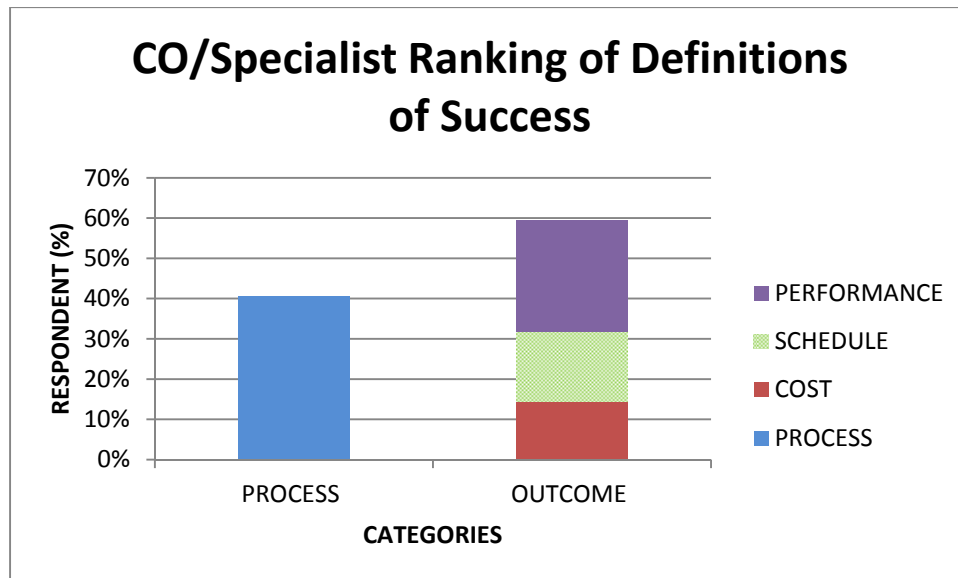
Figure 17.   CO Ranking of Definitions of Success

2.   PMs', CORs', COs', and Contract Specialists' Measurement of Success

a.   Program Managers' Measurement of Success

PMs provided 15 responses when asked to respond to Likert scale questions related to how they measure the success of a service contract. PMs' ratings of process-related factors received an overall mean of 2.52. However, outcomes produced a mean of 3.78 on the Likert scale. This shows that PMs heavily rely on outcomes rather than processes to measure the success of a service contract. Our findings are displayed graphically in Figure 18.

On the Likert scale, cost-related factors showed a mean of 4.15, schedule-related factors received a mean of 3.92, and performance-related factors received a mean of 3.25.

Fifteen respondents were asked to rank different factors related to measuring the success of a service contract. Of the 15 respondents, 43% felt that process-related factors were the most important. Fifty-seven percent felt that outcome-related

factors were the most important. The distribution of highest ranked responses is displayed in Figure 19.

Breaking down the outcome-related factors further, 13% of respondents felt that cost-related factors were the most important, 14% felt that schedule-related factors were most important, and 30% felt that performance-related factors were most important.

PM Measurement of Success
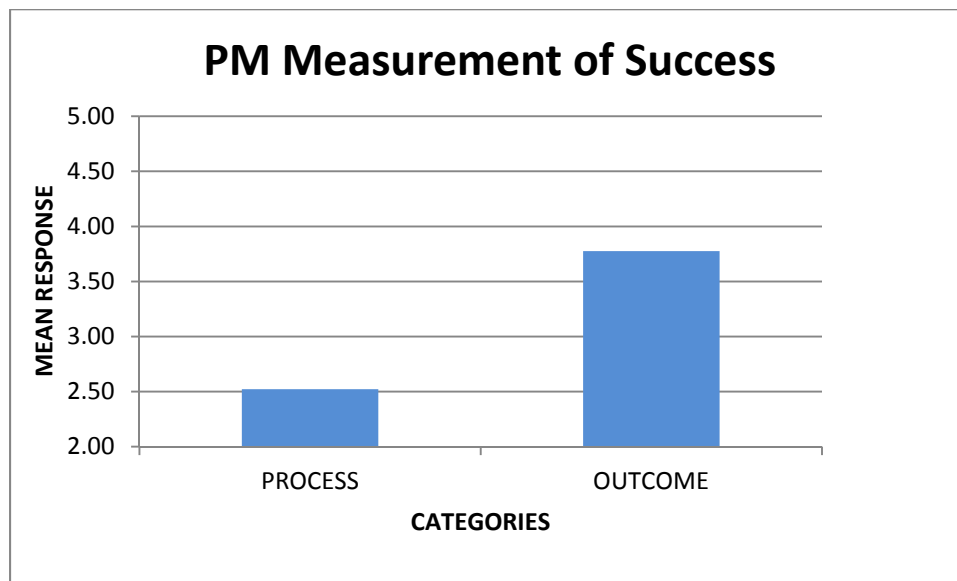
Figure 18.   PM Measurements of Success

PM Ranking of Measurements of Success
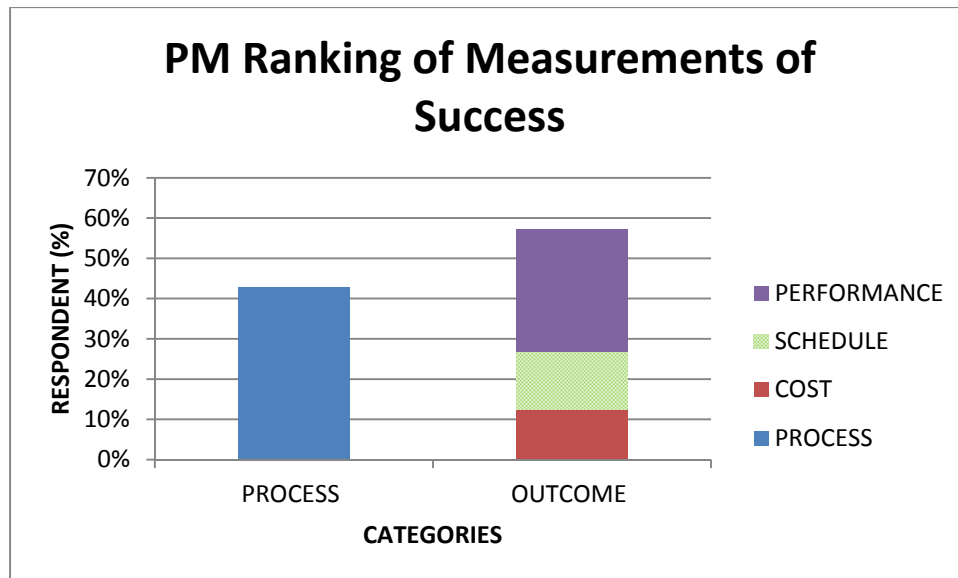
Figure 19.   PM Ranking of Measurements of Success

> **b.   Contracting Officer Representatives' Measurement of Success**

CORs provided 27 responses when asked to respond to Likert scale questions related to how they measure the success of a service contract. Process-related factors received an overall mean of 2.76 when rated by this functional area. However, outcomes produced a mean of 3.77 on the Likert scale. This shows that CORs also find outcomes significantly more important than processes when measuring the success of a service contract. Our results are displayed graphically in Figure 20.

Cost-related factors showed a mean of 4.23, schedule-related factors showed a mean of 4.08, and performance-related factors received a mean of 2.99.

Twenty-seven respondents were asked to rank different factors related to measuring the success of a service contract. Of the 27 respondents, 39% felt that process-related factors were the most important. Sixty-one percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 21.

Breaking down the outcome-related factors further, 28% of respondents felt that cost-related factors were the most important, 9% felt that schedule-related factors were most important, and 24% felt that performance-related factors were most important.
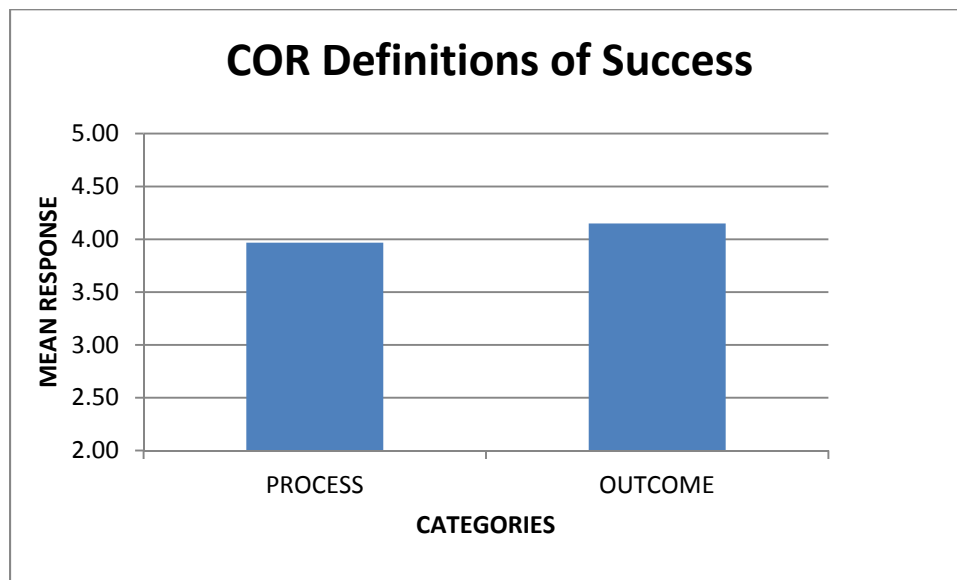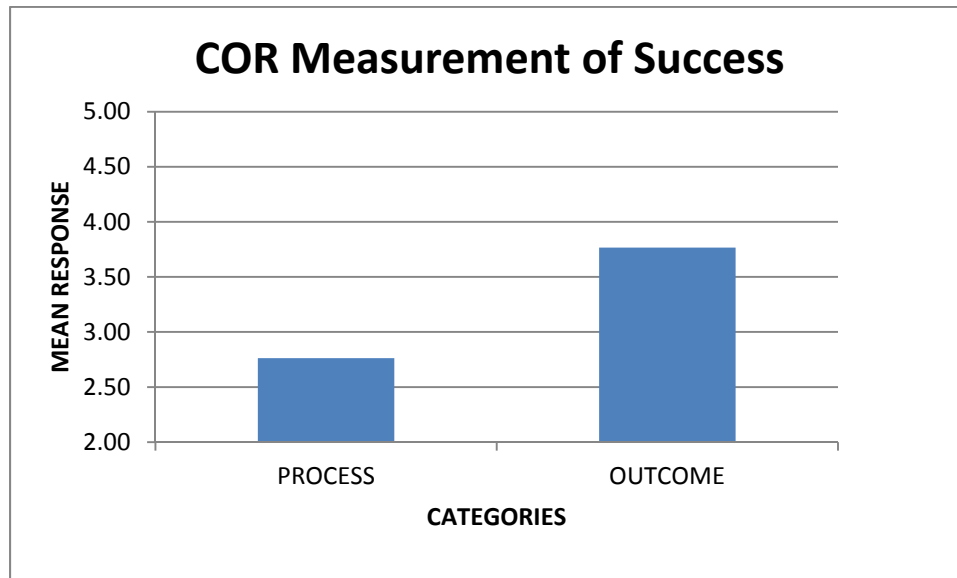

Figure 20.   COR Measurements of Success
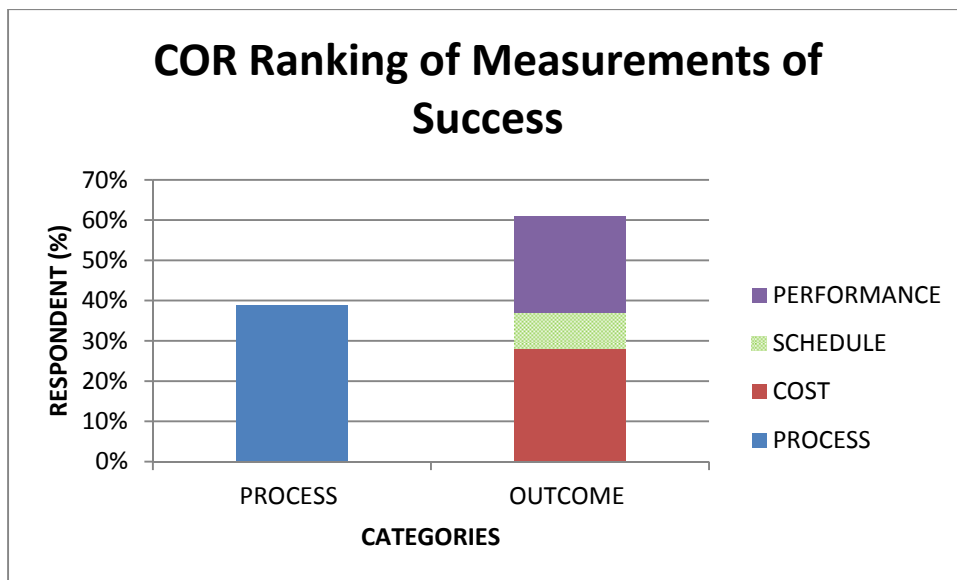
Figure 21.   COR Ranking of Measurements of Success

c. Contracting Officers' and Contract Specialists' Measurement of Success

COs/contract specialists provided 126 Likert scale responses when asked how they measure the success of a service contract. Process-related factors received an overall mean rating of 2.41 from COs/contract specialists. Conversely, outcome-related factors were rated with a mean of 3.77. Our results are displayed graphically in Figure 22.

Within the outcome-related factors, cost showed a mean of 3.98, schedule received a mean rating of 3.98, and performance a mean of 3.47. This shows that COs and contract specialists are aligned with PMs and CORs when measuring the success of a service contract. All three functional roles agree that outcome-related factors heavily outweigh process-related factors when measuring success.

One hundred and twenty-six respondents were asked to rank different factors related to measuring the success of a service contract. Of the 126 respondents, 49% felt that process-related factors were the most important. Fifty-one percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 23.

Breaking down the outcome-related factors further, 17% felt that cost-related factors were the most important, 11% felt that schedule-related factors were most important, and 23% felt that performance-related factors were most important. All results by individual stakeholders are displayed in table format in Appendix A, Table A4.
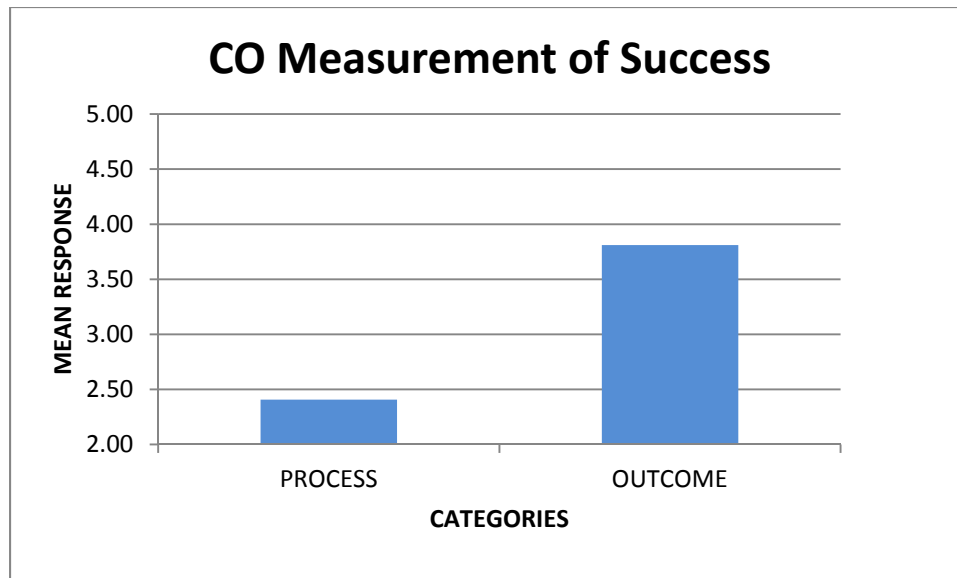
Figure 22.   CO Measurements of Success
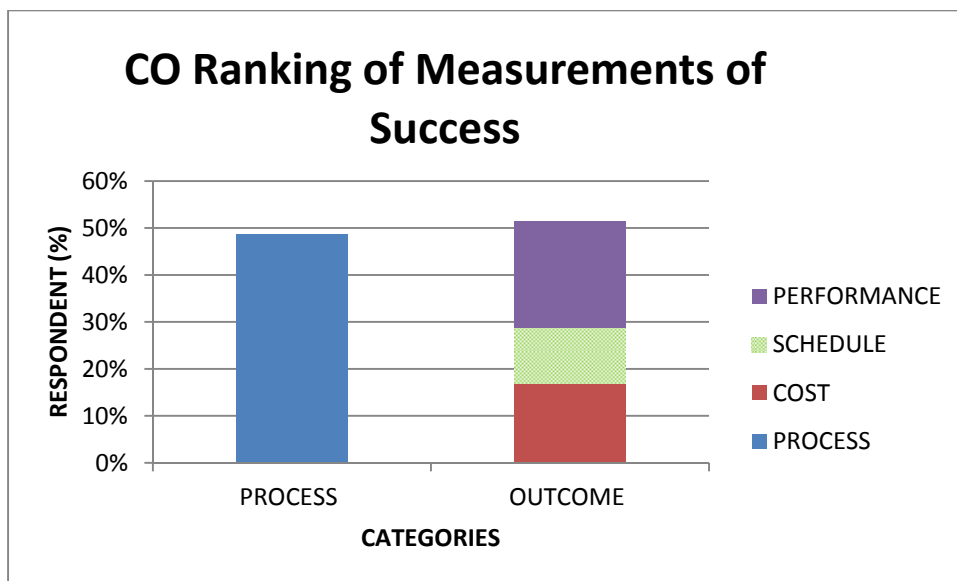
Figure 23.   CO Ranking of Measurements of Success

D.   Findings by DAWIA Level

We separated our data on DAWIA certification levels in order to examine and analyze the results. This analysis is strictly divided among DAWIA levels and contains no other demographic differentiation. Of the 168 participants, 85% had a DAWIA certification level of I, II, or III. The education and experience requirements

for certification rise in conjunction with the level. A majority of data collected on Level I participants showed that these participants had fewer than three years of experience in an acquisition-related billet. Level II participants had a more diverse range of experience with the majority having more than four years, but fewer than eight years of experience in an acquisition-related billet. Level III participants also showed a diverse range of experience, and, as expected, contained participants with more than 19 years of experience in an acquisition-related billet.

1.   DAWIA-Certified Participants' Definition of Success

When differentiated by DAWIA level, Level I and II respondents showed a slightly higher rating than Level III participants on Likert scale factor-related questions. However, the responses concerning processes versus outcomes showed little difference within each level. Level I participants displayed a mean rating on process and outcome factors of 4.00 and 4.14, respectively. Level II participants displayed a mean rating on process and outcome factors of 4.16 and 4.17, respectively. Level III participants displayed a mean rating on process and outcome factors of 3.79 and 4.01, respectively. This shows that while distinct levels may rate processes and outcomes differently, they feel that outcomes are slightly more important than processes. Yet, processes are still considered important when defining the success of service contracts. Our results are displayed graphically across all certification levels in Figure 24.

One hundred and forty-two respondents with a DAWIA certification provided responses when asked to rank definitions of success concerning a service contract. Each certification level provided similar answers within each of the categories on processes and outcomes. Of the Level I respondents, 42% felt that process-related factors were the most important, while 58% felt that outcome-related factors were the most important. Of the Level II respondents, 39% felt that process-related factors were the most important, while 61% felt that outcome-related factors were the most important. Of the Level III respondents, 40% felt that process-related factors were the most important, while 60% felt that outcome-related factors were

the most important. Again, this shows that these particular demographics tend to use outcomes when defining the success of a service contract. The distribution of the responses is shown in Figure 25.
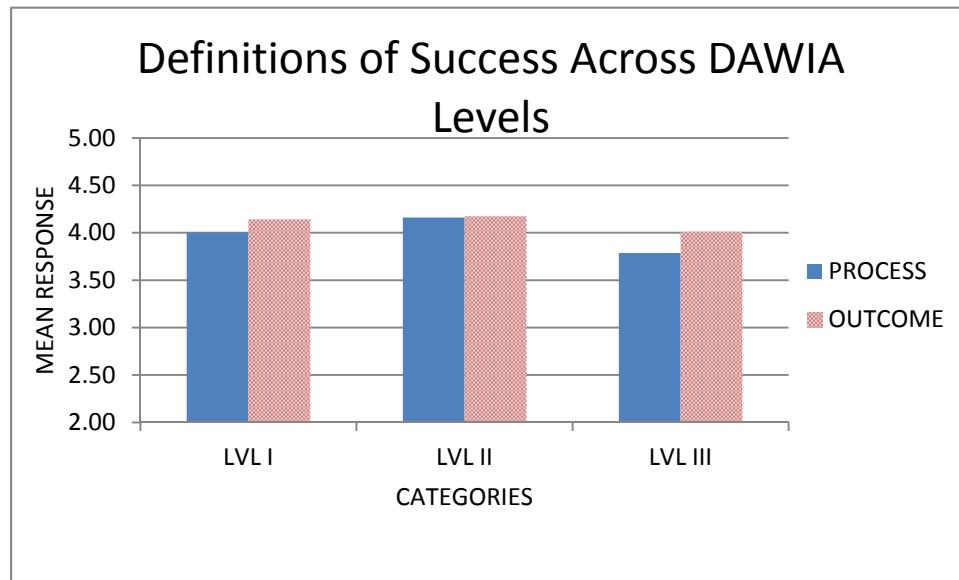
Figure 24. Definitions of Success Across DAWIA Levels
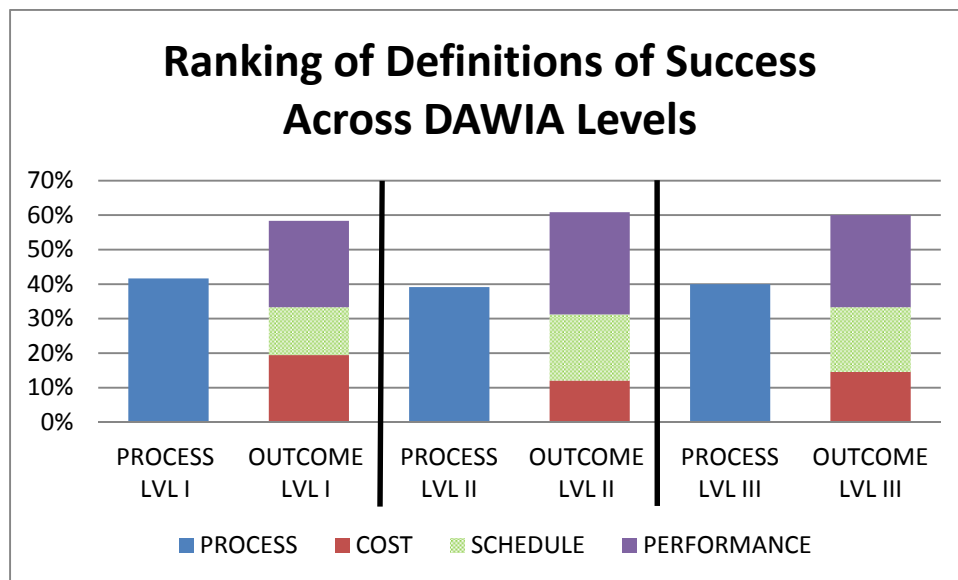
Figure 25. Ranking of Definitions of Success Across DAWIA Levels

2. DAWIA-Certified Participants' Measurement of Success

Our data suggest that when measuring the success of a service contract, the various DAWIA levels rely heavily on outcome-related factors rather than process-related factors. Level I participants displayed a mean rating on process and outcome factors of 2.20 and 3.76, respectively. Level II participants displayed a mean rating on process and outcome factors of 2.63 and 3.86, respectively. Level III participants displayed a mean rating on process and outcome factors of 2.22 and 3.72, respectively. Our results are displayed graphically across all certification levels in Figure 26.

One hundred and forty-six respondents with a DAWIA certification provided 146 responses when asked to rank measurement factors of success concerning a service contract. There is a little more diversity between the levels, but all favor outcomes over processes. Forty-nine percent of Level I respondents felt that processes were most important, with 51% favoring outcomes. Forty-eight percent of Level II respondents felt that processes were most important, with 52% favoring outcomes. Forty-three percent of Level III respondents felt that processes were most important, with 57% favoring outcomes. The distribution of the responses is shown in Figure 27. All results by DAWIA level are displayed in table format in Appendix A, Table A6.
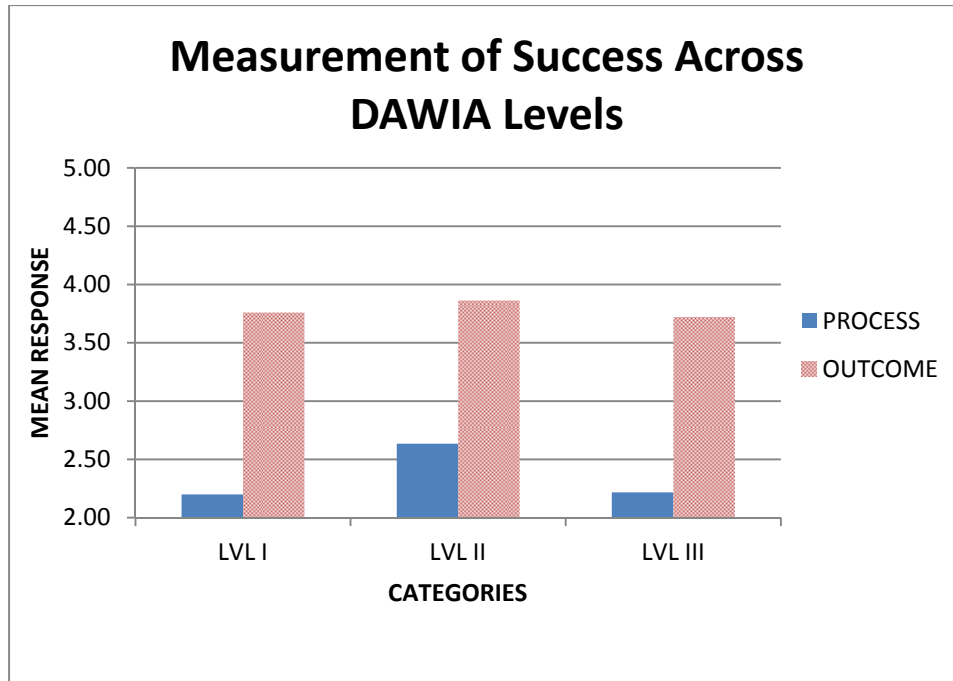
Figure 26.   Measurement of Success Across DAWIA Levels
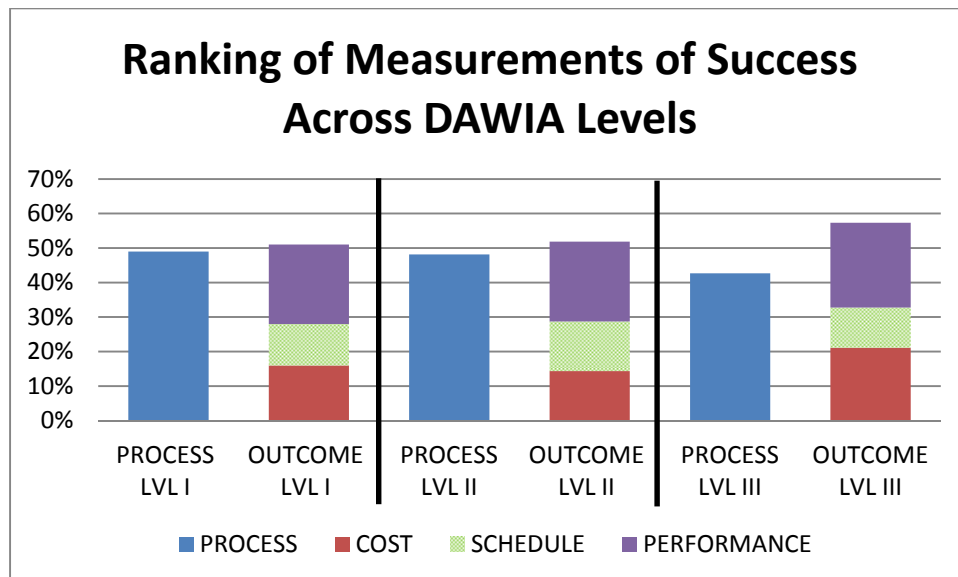
Figure 27.   Ranking of Measurements of Success Across DAWIA Levels

E.   Data Analysis by Type of Service

While examining our data, we found that we obtained the majority of responses from participants who procured certain types of services. Of the 168 total

responses, the equipment-related service portfolio grouping accounted for 72 responses and the knowledge-based service portfolio groupings for 77 responses. Given the majority of responses from these two groups, we further analyzed them to identify trends across service types. The equipment-related service portfolio grouping includes the procurement of maintenance, repair and overhaul, equipment modification, installation, and quality control services. The knowledge-based services portfolio grouping is composed of professional and administrative services, engineering management, program management, logistics management, and education and training. Further demographic breakdown of the two groups shows 40% of knowledge-based service participants were involved with cost reimbursement–type contracts compared to only 6% for equipment-related services. The higher percentage of cost reimbursement–type contracts for knowledge-based service participants is most likely due to the increased challenges and uncertainties in defining requirements associated with these types of services. Equipment-related services are generally more concrete in terms of requirements definitions and would be more suitable for a fixed-price contractual instrument.

In this section, we examine and compare how stakeholders involved with equipment-related services and knowledge-based services define and measure success with regards to services contracts. We only differentiated by type of service and made no other demographic distinctions for mean and ranking results. Our data include the two predominant types of services procured across all functional roles, DAWIA levels, contract types, and organizations.

1.   **Specific Service Type Definition of Success**

In response to our questions asking participants to classify different factors related to defining the success of a service contract, we received 149 responses from participants who work on knowledge-based and equipment-related services. We received 72 responses from participants who worked on equipment-related services and 77 responses from those involved with knowledge-based services. When differentiating between types of service, we found that equipment-related

service participants rated both processes and outcomes higher on all Likert scale questions than knowledge-based service participants. Equipment-related participants displayed a mean rating on process and outcome factors of 4.05 and 4.10, respectively. Knowledge-based participants displayed a mean rating on process and outcome factors of 3.92 and 4.02, respectively. This shows that participants segregated by type of service may rate processes and outcomes slightly differently; however, they both indicated that outcomes are slightly more important than processes for defining success on Likert scale questions. Our results are displayed graphically by type of service in Figure 28.

Seventy-two respondents involved with equipment-related services provided responses when asked to rank definitions of success concerning a service contract. The questions asked of participants dealt with different aspects that aligned with process- and outcome-related groupings. Of the 72 respondents, 42% believed that process factors are most important, while 58% felt that outcomes more accurately define the success of a service contract.

Breaking down the outcome-related factors further, 15% felt that cost-related factors were the most important, 18% felt that schedule-related factors were most important, and 25% felt that performance-related factors were most important.

Seventy-seven respondents involved with knowledge-based services provided responses when asked to rank definitions of success concerning a service contract. Of the 77 respondents, 39% believed that process factors are most important, while 61% felt that outcomes more accurately defined the success of a service contract. The results show that equipment-related service participants rated processes higher and outcomes lower than knowledge-based participants, but both groups indicated that outcomes are more important than processes for defining success, based on their responses to ranking questions. The distribution of highest ranked responses is displayed in Figure 29.

Breaking down the outcome-related factors further, 16% of respondents felt that cost-related factors were the most important, 18% felt that schedule-related factors were most important, and 28% felt that performance-related factors were most important.
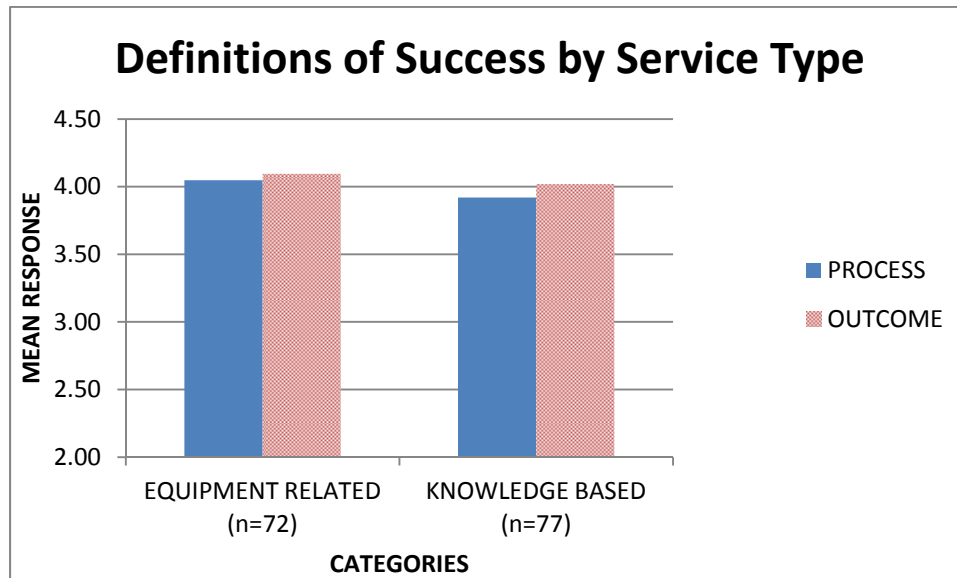
Figure 28.   Definitions of Success by Service Type
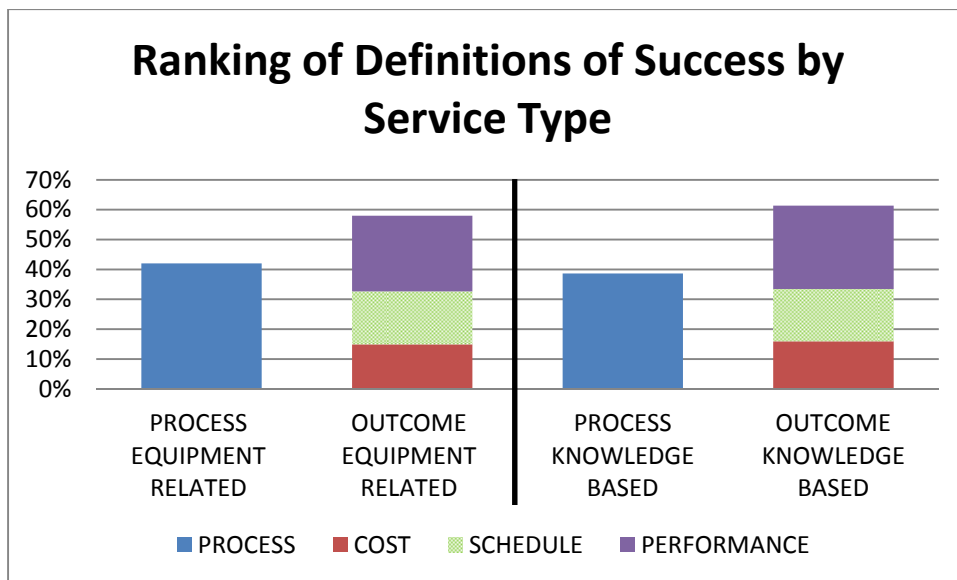
Figure 29.   Ranking of Definitions of Success by Service Type

2.   Specific Service Type Measurements of Success

In measuring the success for different types of services, the equipment-related service participants rated processes much higher on Likert scale questions than knowledge-based service participants. Equipment-related service participants also rated outcomes as being of lower importance than did knowledge-based service participants. Equipment-related participants displayed a mean rating on process and outcome factors of 2.68 and 3.76, respectively. Knowledge-based participants displayed a mean rating on process and outcome factors of 2.29 and 3.82, respectively. The results show that equipment-related service participants rated processes higher and outcomes lower than knowledge-based participants, but both groups indicated that outcomes are more important than processes for measuring success, based on their responses to Likert scale questions. Our results are displayed graphically by type of service in Figure 30.

In response to our questions asking participants to classify different factors related to measuring the success of a service contract, we received 149 responses from participants who work on knowledge-based and equipment-related services. The questions dealt with process- and outcome-related groupings. Of the 72 equipment-related responses to our ranking questions, process-related factors were ranked most important 44% of the time, while outcome-related factors were ranked as most important 56% of the time.

Breaking down the outcome-related factors further, 21% of respondents felt that cost-related factors were the most important, 12% felt that schedule-related factors were most important, and 21% felt that performance-related factors were most important.

Forty-eight percent of the 77 respondents associated with knowledge-based services felt that process-related factors were the most important when measuring success. Fifty-two percent of respondents felt that outcome-related factors were the most important. The results show that equipment-related service participants rated

processes lower and outcomes higher than knowledge-based participants, but both groups indicated that outcomes are more important than processes for measuring success, based on their responses to our ranking questions. The distribution of highest ranked responses is displayed in Figure 31.

Breaking down the outcome-related factors further, 16% of respondents felt that cost-related factors were the most important, 11% felt that schedule-related factors were most important, and 25% felt that performance-related factors were most important. All results by service type are displayed in table format in Appendix A, Table A8.
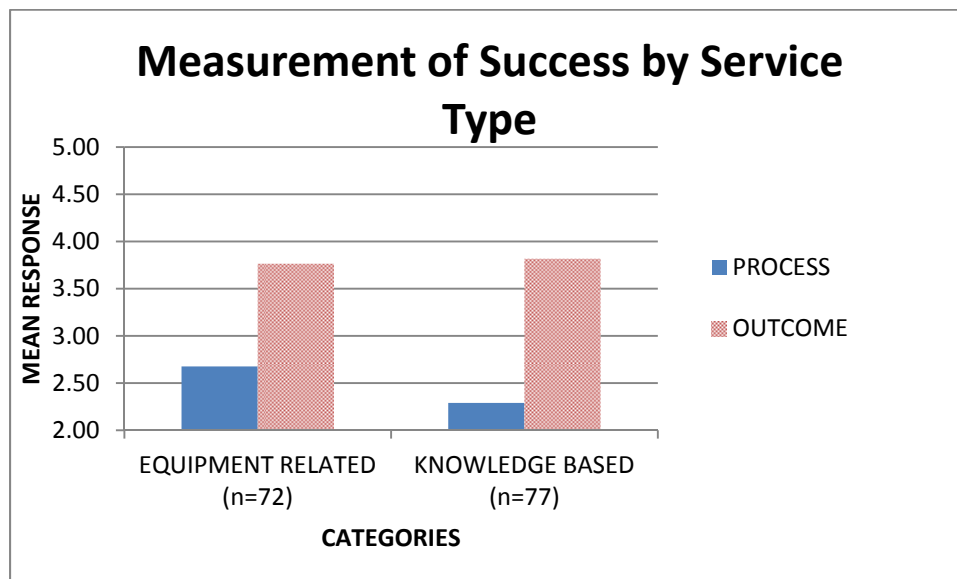
Figure 30.   Measurement of Success by Service Type

Ranking of Measurements of Success by Service Type
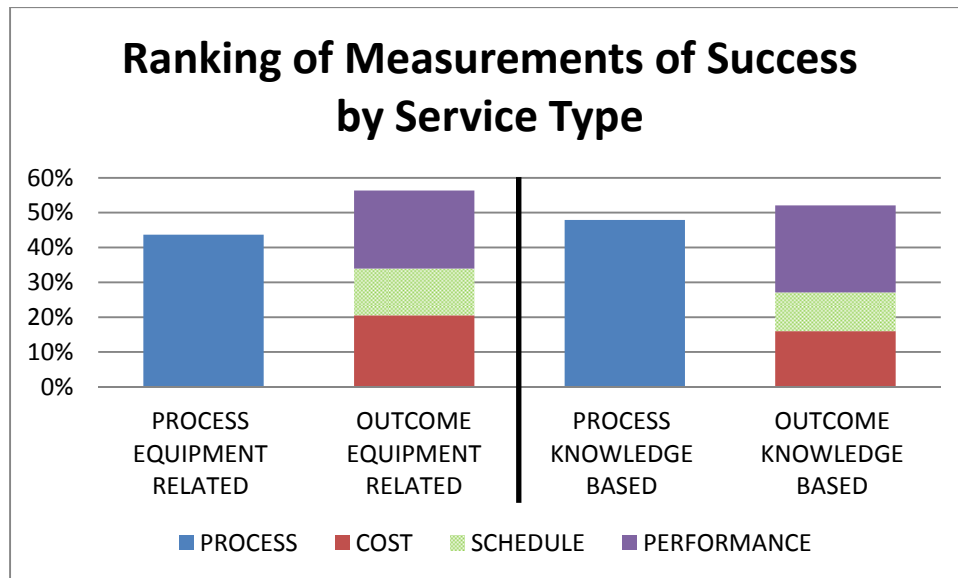
Figure 31.   Ranking of Measurement of Success by Service Type

F.   Analysis

1.   Analysis of Aggregate Survey Responses

The research findings from our overall survey show that when asked to respond on a Likert scale, different stakeholders find all aspects of processes and outcomes important when defining the success of a service contract. The means of the responses we collected are very close, and it does not seem that, as a whole, our population favors process or outcome when defining success. This is due to the nature of Likert scale questions. When asked if something such as cost overruns, major milestones, or a lack of protests is important, all stakeholders will invariably say "yes." That is why the overall mean of all responses, for both outcomes and processes, is fairly high at 4.03. When respondents were forced to rank, the responses differed and outcome-related responses received a high rank of 1 or 2 60% of the time. This is because outcomes, such as keeping on schedule and adhering to a budget, are easy to define and understand. Process-related factors such as administration and communication are harder to quantify.

The findings also demonstrate that when measuring the success of a service contract, all stakeholders tend to focus on outcomes and do not take into consideration the processes; this was true for both Likert scale responses and ranking responses. This is very evident in the Likert scale responses, where none of the process-related factors showed a mean of 3 or more. When forced to rank the different factors with respect to measuring success, the results were similar to defining success, with 56% of "most important" responses falling under the outcomes category.

In general our findings from the "other" category mirrored our aggregate results. While there were only 10 responses, all respondents felt that outcomes were the most important factor when defining and measuring the success of a service contract. We found that our stakeholders in this category rated and ranked processes extremely low in both defining and measuring the success of a service contract. This is because these stakeholders are not terribly burdened by administration and other process-related factors so they feel that these factors are not important. For example, a contractor or end user does not necessarily conduct market research or choose the appropriate contract type. However, they are very concerned with staying within cost, keeping up with schedule, and maintaining a high level of performance.

2.   Analysis Across Stakeholders

When examining how different stakeholders define the success of a service contract, we found that PMs, CORs, COs, and contract specialists all agree that outcome is slightly more important than process, based on their ratings of separate factors on a Likert scale. Each functional role rated outcome slightly over 4.00, while rating processes just below 4.00. The mean of the functional roles combined was 3.94 for processes and 4.11 for outcomes. Within outcome, performance-related factors received the highest average rating, while schedule-related factors received the lowest average rating. All functional roles showed an upward trend from

schedule, to cost, to performance. A comparison of our Likert scale findings for defining success across functional roles is displayed graphically in Figure 32.

When stakeholders were asked to rank different factors concerning their definition of success, we found that there was clear agreement that outcomes are more important than processes. There is, however, some disagreement within the outcome factors of cost, schedule, and performance. CORs feel that cost is the most important factor, while PMs, COs, and specialists placed performance at the top of their rankings. Examined collectively, the major stakeholders provided 168 responses when ranking their definition of the success of a service contract. Sixty percent of respondents felt that outcome-related factors were most important, while 40% felt that process-related factors were the most important when defining success. The distribution of highest ranked responses is displayed in Figure 33.
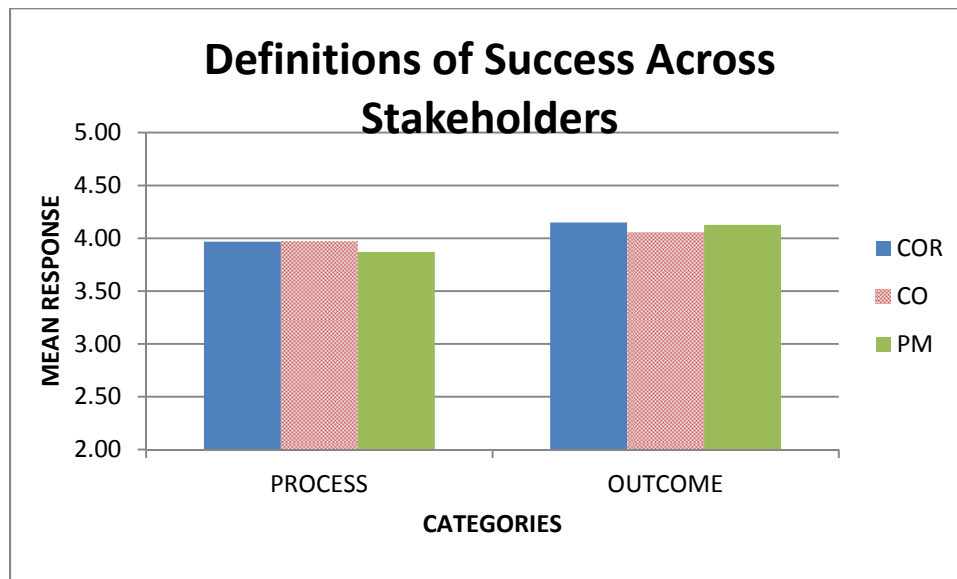
Figure 32.   Definitions of Success Across Major Stakeholders
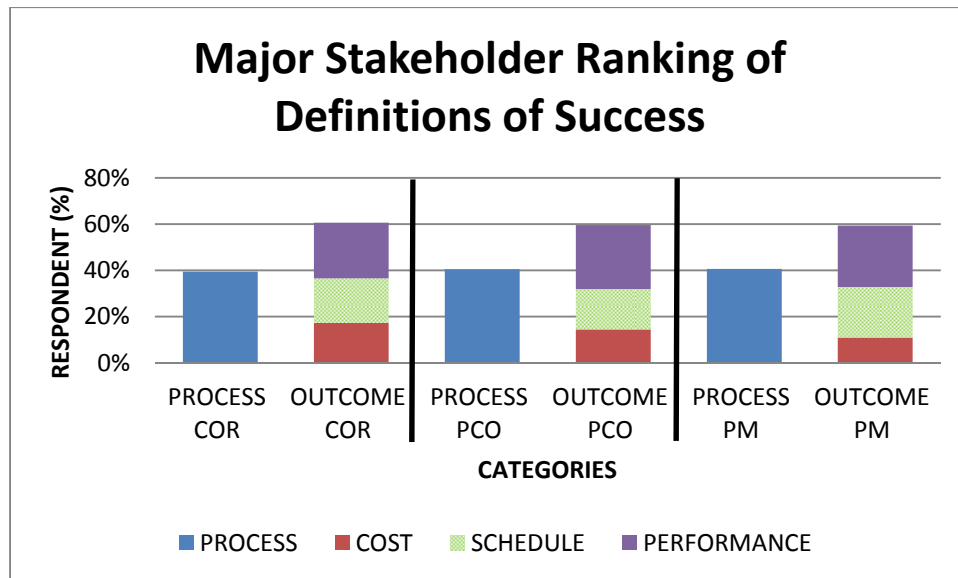
Figure 33. Major Stakeholder Ranking of Definitions of Success

According to our data, stakeholders also tend to measure success in the same way. When asked to rate different factors on the Likert scale related to stakeholders' measures of success, all respondents agreed that outcomes far outweigh processes. When looking at the mean across stakeholders, processes received a rating of 2.56, while outcomes received a rating of 3.78. Within outcome-related factors, stakeholders showed an upward trend from performance, to schedule, to cost. A comparison of our findings for defining success on the Likert scale across functional roles is displayed graphically in Figure 34.

Our ranking data show that, again, major stakeholders prefer outcome-related factors when measuring the success of service contracts. When examined in aggregate, the major stakeholders provided 168 responses to our ranking questions. Of these responses, 43% of respondents felt process factors were most important, while 57% favored factors related to outcomes. The distribution of highest ranked responses is displayed in Figure 35.
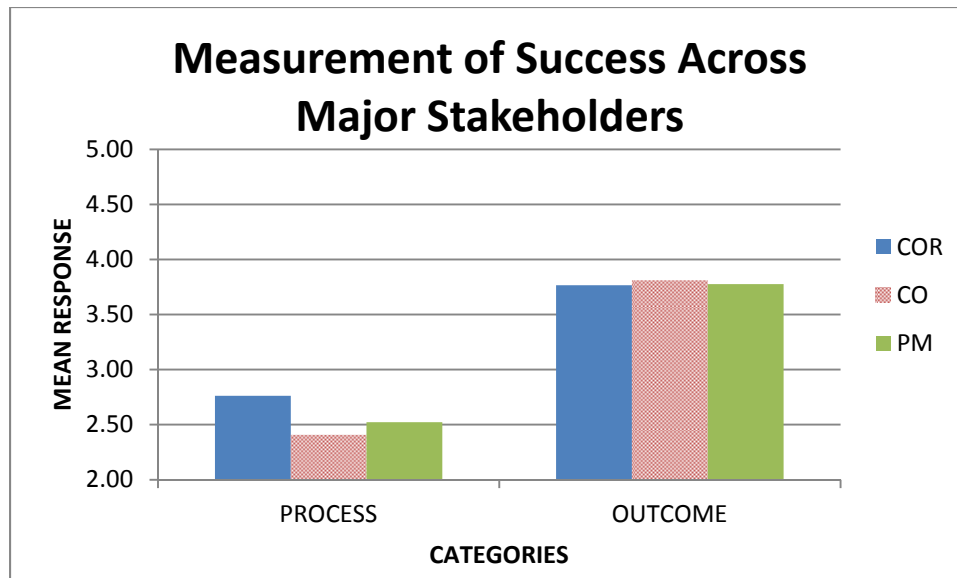
Figure 34. Measurement of Success Across Major Stakeholders
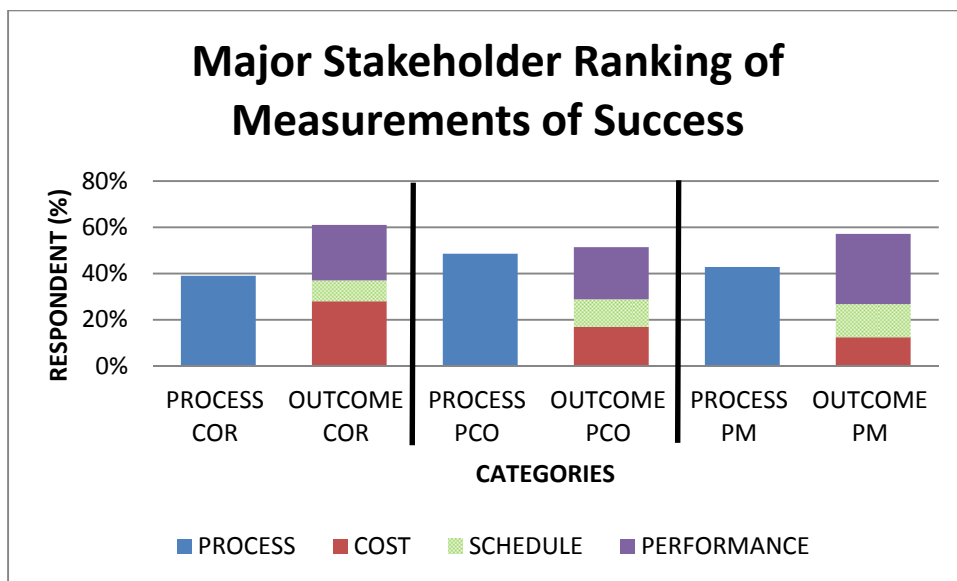
Figure 35. Major Stakeholder Ranking of Measurements of Success

The data collected from the major stakeholders are similar to our cumulative findings. That is to be expected, considering they made up 87% of our total population. The Likert scale responses for definitions of success were, again, relatively high and this is due to the reason explained earlier. It is interesting that in both defining and measuring success, CORs ranked cost highest out of the three

stakeholders. In previous research (Miller et al., 2012), CORs listed performance as more important than cost when defining and measuring success. This is probably due to the open-ended nature of the questions asked in previous research. Our survey may have brought to light issues or factors that CORs had never thought of before.

Another interesting result is that COs tend to place nearly equal importance on processes and outcomes when forced to rank factors concerning measuring success. This is probably due to the administrative nature of the COs' role. For example, their functional role has to deal with modifications, COR reports, and exercising options. PMs and CORs are not overly concerned with processes and are focused on the requirement and outcomes. The data reflect this fact.

It is of note that every demographic consistently rated processes significantly higher on the Likert scale when defining success versus measuring success. We feel that this is because stakeholders view measures as a tangible entity associated with post-award functions. Measures such as cost, schedule, and performance are fairly straightforward in as much as either a goal is met or it is not. Processes such as communication flow and overall management are more obscure and subjective. The stakeholders rated processes higher for defining success because they are closely associated with mainly pre-award functions. Processes such as choosing the correct contract type and appropriate proposal evaluation are crucial for success. Because these are pre-award activities, it is easier to define success than to measure it.

We performed a statistical analysis across the major stakeholders to determine if there was a significant difference between the ratings on the Likert scale. We first performed an *F*-test two sample for variances to determine the appropriate *t*-test to perform. In all instances, we found an equal variance among stakeholders. The only significant difference we discovered was between the CORs and COs/specialists when measuring success. This could be due to the fact that CORs view communication and other processes as a key factor when measuring the

success of a service contract. CORs are also likely to view a protest as a serious issue when measuring success because it results in a delay of execution and the CORs cannot perform their duties. There was no statistically significant difference between any other of the stakeholders on the Likert scale. Tables from statistical analysis are located in Appendix B.

3. Analysis Across DAWIA Levels

After further assessment, we noted that a majority of the DAWIA level-certified personnel were mostly COs, so their results somewhat mirror that demographic. It is of note that when we analyzed Likert scale responses, Level III personnel tend to provide lower responses on the scale than Levels I and II when defining success. Level III personnel generally have more experience than Levels I and II, and that may be the reason for this trend. Seventy-two percent of Level III-certified respondents reported having 10 or more years of experience, and this demographic also had the most divergence from the CO role. The level of experience can explain the low Likert score for the process factors for participants with a Level III certification. Because those respondents have 10 or more years of experience, the processes have become routine and they view administration and communication as standard, whereas Level I and II respondents have relatively low experience and believe that processes are more important. Another reason that more experienced stakeholders view processes as less important is because, as a result of their experience, they have seen the outcomes of fully completed contracts whereas more junior personnel may have only dealt with award and administration. There is the possibility that they have never conducted close out on a contract to actually see the true outcome, and, as a result, Level I and II stakeholders believe that processes are more important than do Level III stakeholders.

4. Analysis by Type of Service

The findings based on type of service showed no substantial deviation for defining the success of a services contract. Both equipment-related and knowledge-based groups rated outcomes slightly higher than processes, based on their

responses to the Likert scale questions. Ranking questions for definitions of success showed outcomes as more important than processes for both groups and corroborated the Likert scale mean findings. Both Likert scale and ranking question results showed performance to be the most important component of outcomes. For example, performance results for the two groups had means of 4.28 and 4.24, compared to 3.97 and 3.82 for schedule. Ranking questions showed 25%–28% for performance and 18% for schedule across both groups. Perhaps ranking results, due to the limitation of choices, provide the most precise definitions of success. When participants were forced to rank, they emphasized the importance of outcomes (cost, schedule, and performance) over processes more definitively when defining the characteristics of successful service contracts.

The findings for measuring success also showed no substantial deviation based on type of service. Both equipment-related and knowledge-based groups rated outcomes significantly higher than processes on the Likert scale questions. Ranking questions for measuring success showed outcomes as more important than processes for both groups and corroborated the Likert scale mean findings. Participants who work on equipment-related services rated cost as more important and performance as less important on both Likert and ranking questions compared to knowledge-based participants. This finding seems to indicate that for knowledge-based services, stakeholders were more willing to trade cost for enhanced performance. This may be attributable to the highly specialized and technical nature of functions such as engineering management and program management, which the government lacks the crucial internal capacity to perform.

G.   Summary

In this chapter, we presented and analyzed the various responses that we received to our survey questions. First, we looked at responses from all demographics and determined that all stakeholders believe processes and outcomes are important when defining the success of a service contract. Our results also showed that when measuring success, all demographics placed higher

importance on outcomes rather than processes. We then differentiated the demographics based on the highest percentage of responses. These demographics included the major stakeholders, DAWIA certification level, and type of service procured. In all instances, we found that outcomes outweighed processes when defining and measuring the success of a service contract.

V. Conclusions, Recommendations, and Areas for Further Research

A. Conclusions

Over the last 10 years, the DoD has steadily shown increases in the number of dollars spent on the acquisition of services, accounting for over half of total contract spending. This increased reliance on service contractors has prompted the GAO and DoDIG to increase surveillance and issue numerous reports citing deficiencies and weaknesses in the acquisition and contract management process. These flaws were noted in every aspect of the contracting process, such as insufficient market research, choosing an inappropriate contract type, poor contractor oversight, and lack of properly trained government personnel.

Another major issue is that while these spending increases have occurred, the acquisition workforce has steadily decreased. The knowledge gap created from this decrease has contributed significantly to ineffective contract management over the last decade. Well-trained and capable personnel are essential for successful management of service contracts. It is imperative that the correct metrics are utilized to define and measure that success.

This research project was conducted to further analyze services contracting management practices within the Navy. The goal was to answer three research questions in order to strengthen the Navy's understanding of successful services acquisitions from disparate stakeholder perspectives:

- How do different stakeholders define successful services contracts within the Navy?

- How do different stakeholders measure services contracts within the Navy?

- How should Navy services contracts be defined and measured?

The objective of this research was to build upon the understanding developed in prior research projects to generate metrics for defining and measuring successful services contracts. These developed metrics could help identify factors that influence successful services contract outcomes.

We found that when defining success all stakeholders tend to utilize outcome-related factors over process-oriented factors. This is because outcomes tend to drive perceptions of success more than processes. Outcomes such as customer satisfaction or meeting major milestones are easily identified, whereas processes tend to be more ambiguous. A process, such as conducting market research in accordance with the FAR, does not necessarily define success. Based on our findings, processes are important factors in that they contribute to the overall success, but not necessarily the definition success. For example, public policy dictates that the government shall provide for full and open competition, award to small business when appropriate, and negotiate fair and reasonable prices. These are all statutory requirements. Based on our research findings, these processes do not necessarily define the success of a service contract; however, they will determine if a contract was awarded in accordance with federal law and public policy. Thus, it is conceivable that a contract may be defined as successful in terms of outcomes (cost, schedule, performance) but, based on processes, may be in violation of public policy.

The findings with relation to measuring the success of a service contract were comparable to defining success. More participants favored outcomes, but this can also be explained by looking at the factors within the broad category. Cost and schedule are easy factors to track and the results can generally be quantified. If a schedule is not met, then the contract could be considered unsuccessful. However, when there is no appropriate contractor oversight, a process, success is not necessarily sacrificed.

We found that stakeholders are inclined to define and measure success in similar ways when asked about differing degrees of importance, agreement, and

likely occurrence of events throughout the service contracting cycle. When asked to rate the factors on a Likert scale, all stakeholders agree that process-related factors such as communication, administrative burden, and clear objectives are of high importance. They also agree that outcomes relating specifically to cost, schedule, and performance are important when defining the success of a contract. However, when asked to rank these factors, stakeholders favor outcomes rather than processes when defining success.

We discovered that when measuring the success of a service contract all stakeholders feel that outcomes are better measures of success than processes, as indicated by their responses both on the Likert scale and when ranking separate factors. This was revealed because outcomes are easily quantifiable. It is fairly easy to track costs, rate performance, and differentiate between a contract that is on schedule and one that is falling behind schedule. It is not as easy to determine an appropriate level of administrative work, a proper amount of communication between stakeholders, or the correct number of change orders or modifications that are necessary.

We also found that CORs view processes as more important than COs/specialists when measuring the success of a service contract. CORs, ideally, are in frequent communication with the COs/specialists to convey the progress and performance on a contract so the CORs view processes as significantly more important. Another reason that CORs rate processes more favorably than COs/specialists is that protests will completely stop work on a contract, and the CORs believe that a protest will result in an unsuccessful contract.

Our research shows that the metrics used to measure success are typically related to cost, schedule, and performance. There is, however, no general consensus among stakeholders as to what can be interpreted as the most important of these metrics. According to the data we collected, some demographics considered performance the most important measure, whereas others found cost to be the most important measure of success.

B. Recommendations

Process-related factors need to be emphasized in stakeholders' definitions of success. Outcome-related factors of cost, schedule, and performance are dominant, while processes are viewed with little importance when defining success. It is evident that this is an issue. Choosing the appropriate contract type, a step in the planning process, should be of great importance when defining the success of a service contract. Time-and-materials or cost-type contracts could result in overpayment, and cost is considered an important factor when defining success. A well-written and clear statement of work should also be highlighted when defining success. If the contractor or the acquisition team does not understand the requirement, modifications are necessary, and increased costs or a schedule slip could result. Process-related factors are inextricably tied to the definition of success of a service contract, and steps need to be taken so that stakeholders understand and act on their importance.

Internal control measures should be in place to ensure that proper processes are being followed and that all stakeholders place high importance on the value of these processes. If stakeholders are forced to take into consideration processes when measuring and defining the success of a service contract, some of the deficiencies in services procurement could be corrected. An example of an internal control measure is the Services Requirements Review Board, a program that NAVSEA implemented in 2011. Commonly referred to as "Services Court," the program is an annual review of the full range of NAVSEA service requirements to understand what services are required and ensure proper oversight is in place so that there is maximum value for dollars spent (NAVSEA, 2012). The board is chaired by the NAVSEA Commander, Vice Admiral Kevin McCoy, and Executive Director Brian Persons in order to involve leadership at the very top level. As a result of their findings, NAVSEA has modified their policies to ensure a clearer definition of service requirements, require more stringent contract file maintenance, and implement proper surveillance and proper performance reporting requirements

(NAVSEA, 2012). All of these reforms are process related and other commands could benefit by implementing similar internal control measures.

Another way to increase the emphasis placed on processes when defining and measuring success is to put in place an operational audit process. This tool can be used to determine the extent of use of process-related factors when defining and measuring success with relation to service contracts. If the correct processes are being followed in a proper way, then it is only natural that desired, or successful, outcomes will follow. A formal audit board should be staffed with their sole responsibility consisting of conducting audits and assessing the extent of proper use of processes in the service contracting process.

The DoD should implement the use of program management concepts to the services acquisition process. This would place a more rigid structure on how services are procured and the contracts subsequently administered. It would also ensure the involvement of PMs. Of the three major stakeholders, PMs made up the smallest portion or respondents. Previous research also notes the apparent lack of PMs involved in the process (Miller et al., 2012). The program management approach also forces the PM to be accountable to the MDA, who is briefed periodically throughout the life cycle. Program management concepts dictate the utilization of IPTs so that there is no lack of knowledge at any point in the acquisition process. The DoD would benefit from the application of program management concepts to service acquisition.

A final recommendation is that a standardized reporting process should be in place in order to track contractor performance related to both processes and outcomes. The COR should be intimately involved in this reporting process and status needs to be regularly conveyed to the stakeholders. This report should include cost elements, as well as schedule and performance elements. However, it need not be limited to only those factors. If CORs are forced to report on adherence to a communication plan as well as customer satisfaction, the stakeholders could also track how effectively processes are being followed. Typically, customer

satisfaction surveys deal with outcomes, but they could also refer to communications, planning, and administration. If a standardized reporting process were in place, it might be possible to accurately capture metrics in order to define and measure the success of a service contract.

C.   Areas for Further Research

The research participants included in this study were strictly from United States Navy commands. Due to this single Service perspective, we recommend expanding this research to include participants from the United States Marine Corps, Army, and Air Force. We were unable to incorporate data from customers and contractors for DoD services acquisitions. As such, we recommend further research include a more complete mix of stakeholders by including contractors and customers.

NAVSEA employs a "Services Court" process to strengthen oversight and improve service acquisition outcomes. These newly implemented internal control processes provide an excellent opportunity for future research directed towards measuring their effectiveness in improving services acquisition outcomes.

Appendix A: Tables of Survey Results

Table A1. Aggregate Stakeholders' Means With Distributions

Aggregate Stakeholders	Define						Measure					
	Likert Mean	1	2	3	4	5	Likert Mean	1	2	3	4	5
Process	3.97	31	103	147	348	419	2.47	85	83	57	44	26
Outcome	4.08	9	58	161	537	437	3.80	46	119	219	363	198
Cost	4.03	3	19	49	158	106	4.04	0	3	27	90	39
Schedule	3.93	2	29	56	164	96	4.00	1	5	23	96	36
Performance	4.29	4	10	56	215	235	3.36	45	111	169	177	123

Table A2. Aggregate Stakeholders' Highest Ranking %

Aggregate Stakeholders	Define	Measure
	Highest Rank %	Highest Rank %
Process	40%	46%
Outcome	60%	54%
Cost	15%	19%
Schedule	19%	12%
Performance	26%	24%

Table A3. Stakeholder Means With Distributions

Stakeholders	Define						Measure					
	Likert Mean	1	2	3	4	5	Likert Mean	1	2	3	4	5
PM												
Process	3.87	1	11	11	30	30	2.52	4	8	8	4	1
Outcome	4.13	0	4	10	40	39	3.78	8	8	21	25	18
Cost	4.24	0	0	3	15	9	4.15	0	0	1	10	3
Schedule	3.63	0	4	6	9	7	3.92	0	1	2	8	3

Performance	4.51	0	0	1	16	23	3.25	8	7	18	7	12
COR												
Process	3.97	8	12	19	55	62	2.76	6	15	7	11	3
Outcome	4.15	0	9	15	52	68	3.77	10	22	39	49	23
Cost	4.16	0	3	5	23	19	4.23	0	0	3	11	8
Schedule	4.06	0	4	8	21	19	4.08	0	1	2	16	6
Performance	4.23	0	2	2	8	30	2.99	10	21	34	22	9
CO												
Process	3.97	22	75	112	239	307	2.41	71	56	40	28	21
Outcome	4.06	7	43	122	390	305	3.81	28	82	149	271	153
Cost	3.98	3	16	40	106	76	3.98	0	3	23	63	27
Schedule	3.91	2	20	39	127	63	3.98	1	3	19	67	26
Performance	4.27	2	7	43	157	166	3.47	27	76	107	141	100

Table A4. Stakeholder Highest Ranking %

Stakeholders	Define	Measure
	Highest Rank %	Highest Rank %
PM		
Process	41%	43%
Outcome	59%	57%
Cost	11%	13%
Schedule	22%	14%
Performance	27%	30%
COR		
Process	39%	39%
Outcome	61%	61%
Cost	17%	28%
Schedule	19%	9%
Performance	24%	24%
CO		
Process	40%	49%
Outcome	60%	51%
Cost	15%	17%
Schedule	17%	12%
Performance	28%	23%

Table A5. DAWIA Level Means With Distributions

DAWIA LEVELS	Define Likert Mean	1	2	3	4	5	Measure Likert Mean	1	2	3	4	5
LEVEL I												
Process	4.00	9	29	47	125	131	2.20	23	23	23	15	8
Outcome	4.14	1	10	56	166	161	3.76	16	40	77	108	65
Cost	4.12	0	2	16	51	41	3.88	0	0	9	24	18
Schedule	3.96	0	6	20	53	34	3.96	0	2	6	33	12
Performance	4.35	1	2	20	62	86	3.44	16	38	62	51	35
LEVEL II												
Process	4.16	7	19	47	103	160	2.63	24	22	19	16	11
Outcome	4.17	2	9	49	174	150	3.86	13	30	64	120	67
Cost	4.14	2	3	14	47	42	4.08	0	0	6	34	10
Schedule	4.03	0	6	17	55	33	4.02	0	0	9	30	10
Performance	4.35	0	0	18	72	75	3.49	13	30	49	56	47
LEVEL III												
Process	3.79	15	55	53	120	128	2.22	38	38	15	13	7
Outcome	4.01	6	39	56	197	126	3.72	17	49	78	135	66
Cost	3.76	1	14	19	60	23	3.88	0	3	12	32	11
Schedule	4.01	2	17	19	56	29	3.95	1	3	8	33	14
Performance	4.17	3	8	18	81	74	3.34	16	43	58	70	41

Table A6. DAWIA Level Highest Rank %

Stakeholders	Define	Measure
	Highest Rank %	Highest Rank %
Level I		
Process	42%	49%
Outcome	58%	61%
Cost	19%	16%
Schedule	14%	12%
Performance	25%	23%
Level II		
Process	39%	48%
Outcome	61%	52%
Cost	12%	14%
Schedule	19%	14%
Performance	30%	23%
Level III		
Process	40%	43%
Outcome	60%	57%
Cost	15%	21%
Schedule	19%	12%
Performance	27%	25%

Table A7. Service Type Means With Distributions

Service Type	Define Likert Mean	1	2	3	4	5	Measure Likert Mean	1	2	3	4	5
Equipment Related												
Process	4.05	7	25	69	147	159	2.68	27	25	23	17	14
Outcome	4.10	2	13	70	221	160	3.76	17	44	94	143	72
Cost	4.03	1	5	21	64	39	4.08	0	0	12	39	17
Schedule	3.97	0	6	25	70	33	3.87	0	2	14	39	10
Performance	4.28	1	2	24	87	88	3.34	17	42	68	65	45
Knowledge Based												
Process	3.92	15	59	52	138	179	2.29	43	37	20	19	7
Outcome	4.02	6	38	60	223	180	3.82	20	46	88	155	88
Cost	4.00	1	11	19	65	45	3.97	0	2	12	39	14
Schedule	3.82	2	21	20	63	41	4.07	1	2	8	37	20
Performance	4.24	3	6	21	95	94	3.41	19	42	68	79	54

Table A8. Service Type Highest Rank %

Service Type	Define	Measure
	Highest Rank %	Highest Rank %
Equipment Related		
Process	42%	44%
Outcome	58%	56%
Cost	15%	21%
Schedule	18%	13%
Performance	25%	22%
Knowledge Based		
Process	39%	48%
Outcome	61%	52%
Cost	16%	16%
Schedule	18%	11%
Performance	28%	25%

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Appendix B: Statistical Analysis Results

Table B1. Statistical Analysis of Process Definition Between CORs and COs

PROCESS DEFINE

F-Test Two-Sample for Variances

	COR	CO
Mean	3.96795	3.971164
Variance	0.26893	0.3253929
Observations	26	126
df	25	125
F	0.82648	
P(F <= f) one-tail	0.29793	
F Critical one-tail	0.56619	

t-Test: Two-Sample Assuming Equal Variances

	COR	CO
Mean	3.96795	3.971164
Variance	0.26893	0.3253929
Observations	26	126
Pooled Variance	0.31598	
Hypothesized Mean Difference	0	
df	150	
t Stat	-0.0266	
P(T <= t) one-tail	0.48943	
t Critical one-tail	1.65508	
P(T <= t) two-tail	0.97885	
t Critical two-tail	1.97591	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of processes when defining success from the COR and CO showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B2. Statistical Analysis of Outcome Definition Between CORs and COs

OUTCOME DEFINE

F-Test Two-Sample for Variances

	COR	*CO*
Mean	4.14744	4.05776
Variance	0.25258	0.27918
Observations	26	126
df	25	125
F	0.90471	
P(F <= f) one-tail	0.40164	
F Critical one-tail	0.56619	

t-Test: Two-Sample Assuming Equal Variances

	COR	*CO*
Mean	4.14744	4.05776
Variance	0.25258	0.27918
Observations	26	126
Pooled Variance	0.27475	
Hypothesized Mean Difference	0	
df	150	
t Stat	0.79425	
P(T <= t) one-tail	0.21415	
t Critical one-tail	1.65508	

P(T <= t) two-tail	0.4283	
t Critical two-tail	1.97591	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of outcomes when defining success from the COR and CO showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B3. Statistical Analysis of Process Measurement Between CORs and COs

PROCESS MEASURE

F-Test Two-Sample for Variances

	COR	*CO*
Mean	2.79167	2.40789
Variance	1.10688	0.99365
Observations	24	114
df	23	113
F	1.11395	
P(F <= f) one-tail	0.34183	
F Critical one-tail	1.62527	

t-Test: Two-Sample Assuming Equal Variances

	COR	*CO*
Mean	2.79167	2.40789
Variance	1.10688	0.99365
Observations	24	114
Pooled Variance	1.0128	
Hypothesized Mean Difference	0	
df	136	

t Stat	1.69797
P(T <= t) one-tail	0.0459
t Critical one-tail	1.65613
P(T <= t) two-tail	0.0918
t Critical two-tail	1.97756

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of processes when measuring success from the COR and CO showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is a statistically significant difference.

Table B4. Statistical Analysis of Outcome Measurement Between CORs and COs

OUTCOME MEASURE

F-Test Two-Sample for Variances

	COR	*CO*
Mean	3.49028	3.47899
Variance	0.28015	0.33389
Observations	25	118
df	24	117
F	0.83905	
P(F <= f) one-tail	0.31894	
F Critical one-tail	0.55834	

t-Test: Two-Sample Assuming Equal Variances

	COR	*CO*
Mean	3.49028	3.47899
Variance	0.28015	0.33389
Observations	25	118
Pooled Variance	0.32475	

Hypothesized Mean Difference	0
df	141
t Stat	0.08997
P(T <= t) one-tail	0.46422
t Critical one-tail	1.65573
P(T <= t) two-tail	0.92844
t Critical two-tail	1.97693

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of outcomes when measuring success from the COR and CO showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B5. Statistical Analysis of Process Definition Between CORs and PMs

PROCESS DEFINE

F-Test Two-Sample for Variances

	COR	PM
Mean	3.96795	3.86667
Variance	0.26893	0.20704
Observations	26	13
df	25	12
F	1.29895	
P(F <= f) one-tail	0.32559	
F Critical one-tail	2.49773	

t-Test: Two-Sample Assuming Equal Variances

	COR	PM
Mean	3.96795	3.86667
Variance	0.26893	0.20704

Observations	26	13
Pooled Variance	0.24886	
Hypothesized Mean Difference	0	
df	37	
t Stat	0.5977	
P(T <= t) one-tail	0.27684	
t Critical one-tail	1.68709	
P(T <= t) two-tail	0.55368	
t Critical two-tail	2.02619	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of processes when defining success from the COR and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B6. Statistical Analysis of Outcome Definition Between CORs and PMs

OUTCOME DEFINE

F-Test Two-Sample for Variances

	COR	PM
Mean	4.14744	4.11538
Variance	0.25258	0.17359
Observations	26	13
df	25	12
F	1.45502	
P(F <= f) one-tail	0.25204	
F Critical one-tail	2.49773	

t-Test: Two-Sample Assuming Equal Variances

	COR	PM

Mean	4.14744	4.11538
Variance	0.25258	0.17359
Observations	26	13
Pooled Variance	0.22696	
Hypothesized Mean Difference	0	
df	37	
t Stat	0.19806	
P(T <= t) one-tail	0.42204	
t Critical one-tail	1.68709	
P(T <= t) two-tail	0.84408	
t Critical two-tail	2.02619	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of outcomes when defining success from the COR and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B7. Statistical Analysis of Process Measurement Between CORs and PMs

PROCESS MEASURE

F-Test Two-Sample for Variances

	COR	*PM*
Mean	2.88248	2.46154
Variance	1.13514	0.8109
Observations	26	13
df	25	12
F	1.39986	
P(F <= f) one-tail	0.27594	
F Critical one-tail	2.49773	

t-Test: Two-Sample Assuming Equal Variances

	COR	PM
Mean	2.88248	2.46154
Variance	1.13514	0.8109
Observations	26	13
Pooled Variance	1.02998	
Hypothesized Mean Difference	0	
df	37	
t Stat	1.22104	
P(T <= t) one-tail	0.1149	
t Critical one-tail	1.68709	
P(T <= t) two-tail	0.22979	
t Critical two-tail	2.02619	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of processes when measuring success from the COR and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B8. Statistical Analysis of Outcome Measurement Between CORs and PMs

OUTCOME MEASURE

F-Test Two-Sample for Variances

	COR	PM
Mean	3.49028	3.44231
Variance	0.28015	0.26853
Observations	25	13
df	24	12

F		1.04328
P(F <= f) one-tail		0.48911
F Critical one-tail		2.50548

t-Test: Two-Sample Assuming Equal Variances

	COR	PM
Mean	3.49028	3.44231
Variance	0.28015	0.26853
Observations	25	13
Pooled Variance	0.27628	
Hypothesized Mean Difference	0	
df	36	
t Stat	0.2669	
P(T <= t) one-tail	0.39553	
t Critical one-tail	1.6883	
P(T <= t) two-tail	0.79107	
t Critical two-tail	2.02809	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of outcomes when measuring success from the COR and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B9. Statistical Analysis of Process Definition Between COs and PMs

PROCESS DEFINE

F-Test Two-Sample for Variances

	CO	PM
Mean	3.97116	3.86667
Variance	0.32539	0.20704
Observations	126	13
df	125	12
F	1.57167	
P(F <= f) one-tail	0.19214	
F Critical one-tail	2.33924	

t-Test: Two-Sample Assuming Equal Variances

	CO	PM
Mean	3.97116	3.86667
Variance	0.32539	0.20704
Observations	126	13
Pooled Variance	0.31503	
Hypothesized Mean Difference	0	
df	137	
t Stat	0.63912	
P(T <= t) one-tail	0.26191	
t Critical one-tail	1.65605	
P(T <= t) two-tail	0.52381	
t Critical two-tail	1.97743	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of processes when defining success from the CO and PM showed any significant difference. The F-test

shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B10. Statistical Analysis of Outcome Definition Between COs and PMs

OUTCOME DEFINE

F-Test Two-Sample for Variances

	CO	PM
Mean	4.05776	4.11538
Variance	0.27918	0.17359
Observations	126	13
df	125	12
F	1.60826	
P(F <= f) one-tail	0.17953	
F Critical one-tail	2.33924	

t-Test: Two-Sample Assuming Equal Variances

	CO	PM
Mean	4.05776	4.11538
Variance	0.27918	0.17359
Observations	126	13
Pooled Variance	0.26993	
Hypothesized Mean Difference	0	
df	137	
t Stat	-0.3807	
P(T <= t) one-tail	0.35199	
t Critical one-tail	1.65605	
P(T <= t) two-tail	0.70399	
t Critical two-tail	1.97743	

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of outcomes when defining success from the CO and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B11. Statistical Analysis of Process Measurement Between COs and PMs

PROCESS MEASURE

F-Test Two-Sample for Variances

	CO	PM
Mean	2.40789	2.46154
Variance	0.99365	0.8109
Observations	114	13
df	113	12
F	1.22538	
P(F <= f) one-tail	0.36651	
F Critical one-tail	2.34371	

t-Test: Two-Sample Assuming Equal Variances

	CO	PM
Mean	2.40789	2.46154
Variance	0.99365	0.8109
Observations	114	13
Pooled Variance	0.97611	
Hypothesized Mean Difference	0	
df	125	
t Stat	-0.1855	
P(T <= t) one-tail	0.42658	
t Critical one-tail	1.65714	

P(T <= t) two-tail	0.85315
t Critical two-tail	1.97912

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of processes when measuring success from the CO and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

Table B12. Statistical Analysis of Outcome Measurement Between COs and PMs

OUTCOME MEASURE

F-Test Two-Sample for Variances

	CO	PM
Mean	3.47899	3.44231
Variance	0.33389	0.26853
Observations	118	13
df	117	12
F	1.24341	
P(F <= f) one-tail	0.35453	
F Critical one-tail	2.34212	

t-Test: Two-Sample Assuming Equal Variances

	CO	PM
Mean	3.47899	3.44231
Variance	0.33389	0.26853
Observations	118	13
Pooled Variance	0.32781	
Hypothesized Mean Difference	0	
df	129	

t Stat	0.21924
P(T <= t) one-tail	0.4134
t Critical one-tail	1.65675
P(T <= t) two-tail	0.82681
t Critical two-tail	1.97852

These tables display the statistical analysis conducted to determine if the mean of Likert scale responses with regards to the importance of outcomes when measuring success from the CO and PM showed any significant difference. The F-test shows that the variance between responses is assumed to be 0. The t-test shows that there is no significant difference.

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